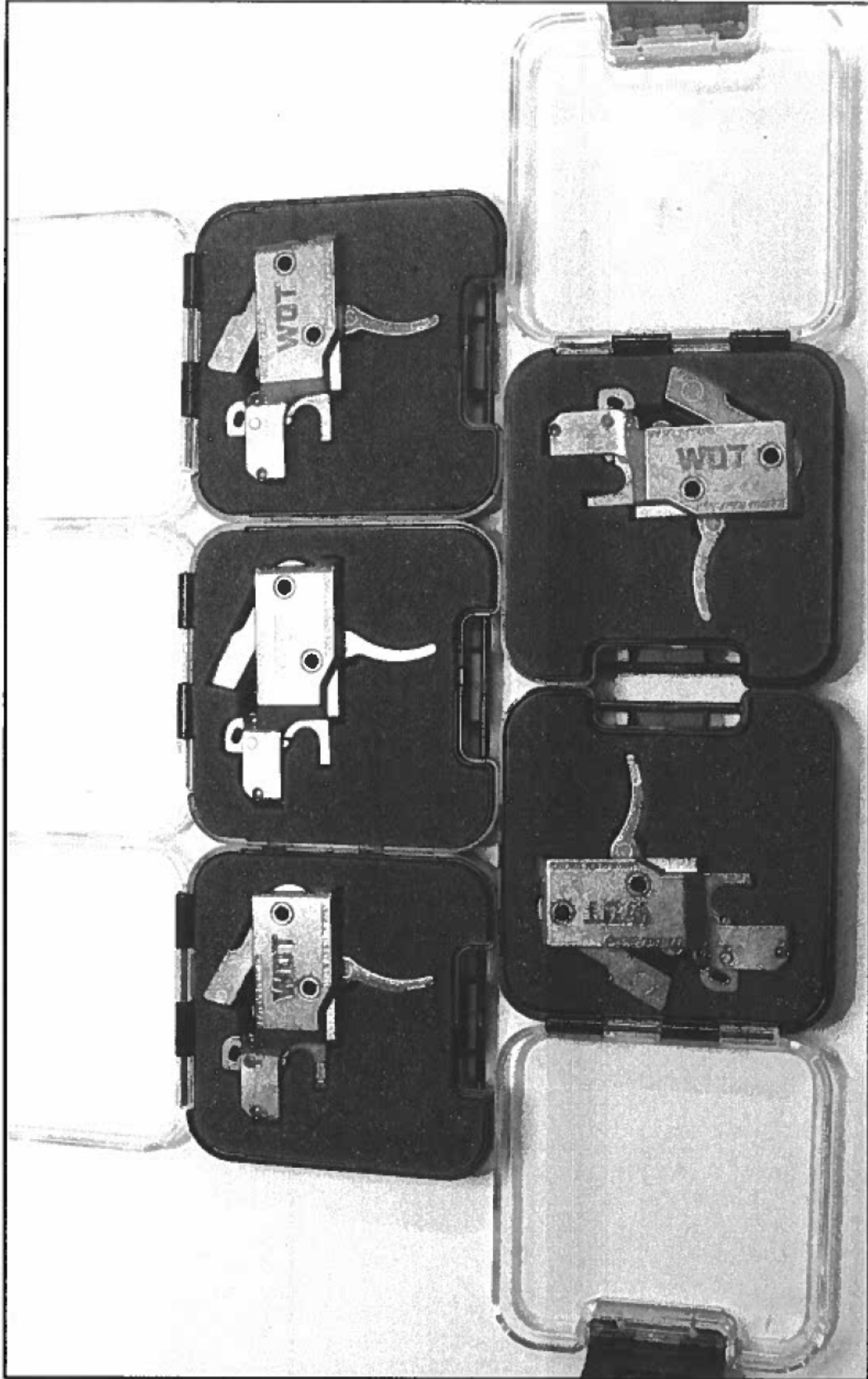


VOLUME 4

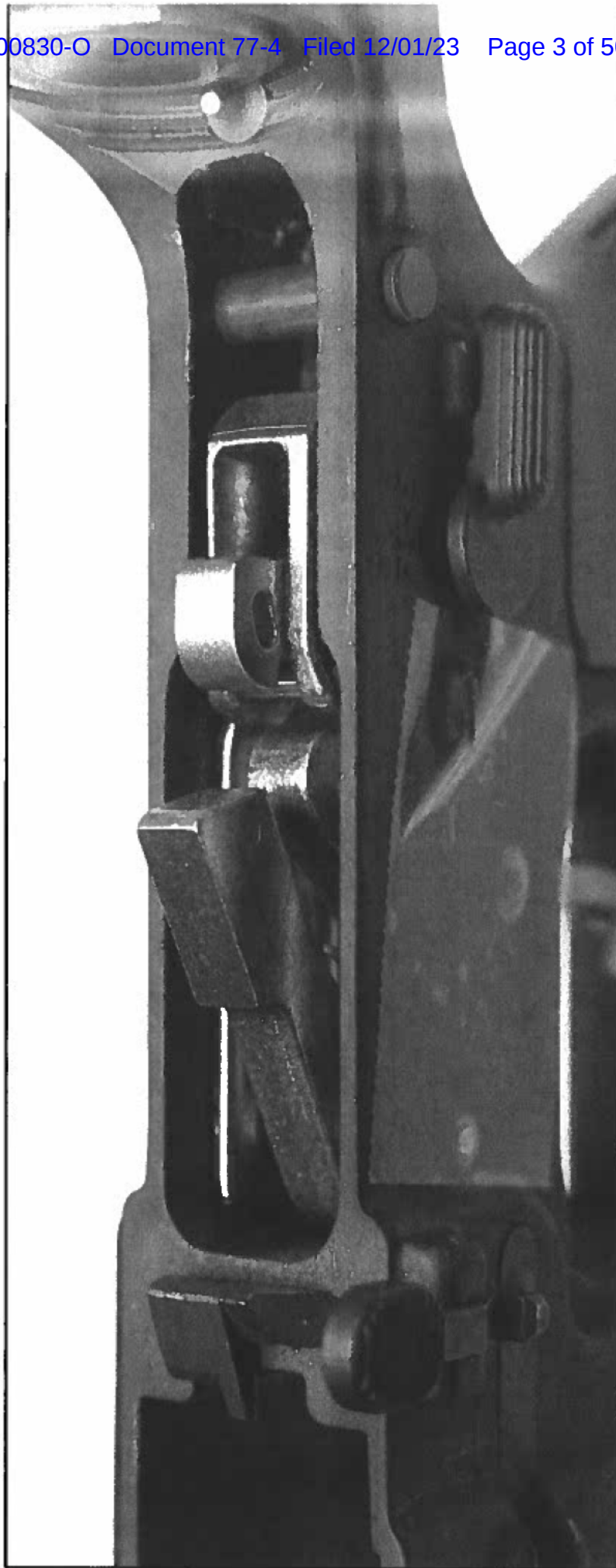
Exhibits 27-31 Packaging Removed

765040-26-0011
2023-258-ALC
Page 32



ATF0229

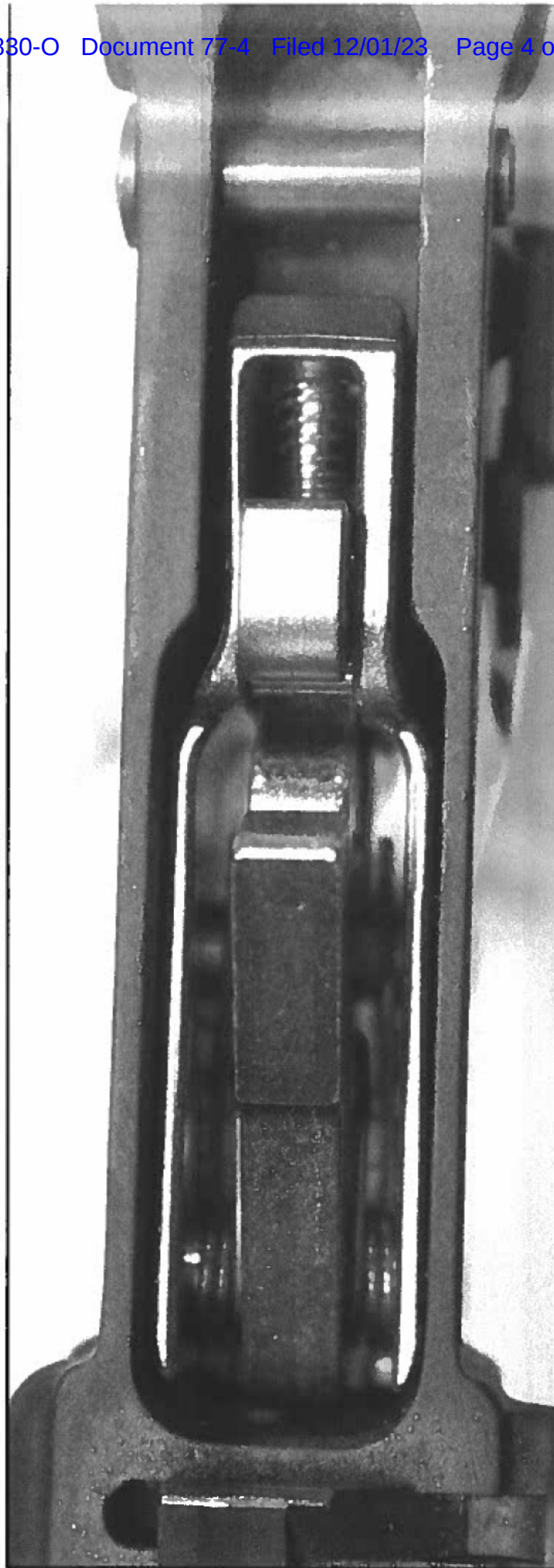
Exhibit 29 Installed in NFC AR15-type Rifle



ATF0230

Exhibit 29 Installed in NFC AR15-type Rifle

765040-2-001
2023-25-A1C
Page 3



ATF0231

**Firearms Technology Criminal Branch
Report of Technical Examination**



244 Needy Road
Martinsburg, WV 25401

Phone: 304-616-4300
Fax: 304-616-4301

To:

Special Agent Dean Conigliaro
Bureau of Alcohol, Tobacco, Firearms and Explosives
32 Old Slip
7th Floor, Suite 700
New York, NY 10005

UI#: 765040-23-0011

RE: Rare Breed Triggers

FTCB#: 2023-724-ALC
326038

Date Exhibit Received: 4/20/2023

Delivered by: FedEx 7718 9820 5250

Type of Examination Requested:

Test, Examination, Classification

These findings are founded on my experience and my review of pertinent laws, materials, and records. I reserve the right to amend or supplement this report.

Exhibit:

42. Rare Breed Triggers, model FRT-15, no serial number (suspected machinegun).

Pertinent Authority:

Title 28 of the United States Code (U.S.C.) provides the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) the authority to investigate criminal and regulatory violations of Federal firearms law at the direction of the Attorney General. Under the corresponding Federal regulation at 28 C.F.R. 0.130 the Attorney General provides ATF with the authority to investigate, administer, and enforce the laws related to firearms, in relevant part, under 18 U.S.C. Chapter 44 (Gun Control Act) and 26 U.S.C. Chapter 53 (National Firearms Act). Pursuant to the aforementioned statutory and regulatory authority, the ATF Firearms and Ammunition Technology Division (FATD) provides expert technical support on firearms and ammunition to federal, state, and local law enforcement agencies regarding the Gun Control Act and the National Firearms Act.

The Gun Control Act (GCA), 18 U.S.C. § 921(a)(24), defines the term “**machinegun**” as having: “... *the meaning given such term in section 5845(b) of the National Firearms Act (26 U.S.C. 5845(b)).*”

The National Firearms Act (NFA), 26 U.S.C. § 5845(a), defines “**firearm**” to include: “...*(1) a shotgun having a barrel or barrels of less than 18 inches in length; (2) a weapon made from a shotgun if such weapon as modified has an overall length of less than 26 inches or a barrel or barrels of less than 18 inches in length; (3) a rifle having a barrel or barrels of less than 16 inches in length (4) a weapon made from a rifle if such weapon as modified has an overall length of less than 26 inches or a barrel or barrels of less than 16 inches in length;*

(5) any other weapon, as defined, as defined in subsection (e); (6) **a machinegun**; (7) any silencer (as defined in 18 U.S.C. § 921); and (8) a destructive device. The term “firearm” shall not include an antique firearm or any device (other than a machinegun or destructive device) which, although designed as a weapon, the...[Attorney General]...finds by reason of the date of its manufacture, value, design and other characteristics is primarily a collector’s item and is not likely to be used as a weapon.”

The NFA, 26 U.S.C. § 5845(b), defines “**machinegun**” as: “...**any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger.** The term shall also include the frame or receiver of any such weapon, any part designed and intended solely and exclusively, or **combination of parts designed and intended, for use in converting a weapon into a machinegun**, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person.” (emphasis added)

The NFA, 26 U.S.C. § 5842, “**Identification of firearms**,” states: “... (a) Identification of firearms other than destructive devices. - Each manufacturer and importer and anyone making a firearm shall identify each firearm, other than a destructive device, manufactured, imported, or made by a serial number which may not be readily removed, obliterated, or altered, the name of the manufacturer, importer, or maker, and such other identification as the ... [Attorney General]... may by regulations prescribe. (b) Firearms without serial number. - Any person who possesses a firearm, other than a destructive device, which does not bear the serial number and other information required by subsection (a) of this section shall identify the firearm with a serial number assigned by the ... [Attorney General]... and any other information the...[latter]... may by regulations prescribe.”

Finally, 27 CFR §§ 478.11 and 479.11, further define the term “**machinegun**” to include two sentences at the end of the statutory definition to read as follows: “...For purposes of this definition, **the term “automatically” as it modifies “shoots, is designed to shoot, or can be readily restored to shoot,” means functioning as the result of a self-acting or self-regulating mechanism that allows the firing of multiple rounds through a single function of the trigger; and “single function of the trigger” means a single pull of the trigger and analogous motions.** The term “machine gun” includes a bump-stock-type device, i.e., a device that allows a semi-automatic firearm to shoot more than one shot with a single pull of the trigger by harnessing the recoil energy of the semiautomatic firearm to which it is affixed so that the trigger resets and continues firing without additional physical manipulation of the trigger by the shooter.” (emphasis added)

Findings:

As background, Federal law defines “machinegun,” in relevant part, as “any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger” as well as a “combination of parts designed and intended, for use in converting a weapon into a machinegun.” Legislative history for the NFA indicates that the drafters equated a “single function of the trigger” with “single pull of the trigger.” National Firearms Act: Hearings Before the Comm. On Ways and Means, House of Representatives, Second Session on H.R. 9066, 73rd Cong., at 40 (1934). ATF has long held that a single function of the trigger is a “single pull” or alternatively, a single release of a trigger. Therefore, a firearm is not a machinegun if a projectile is expelled when the trigger is pulled, and a second projectile is expelled when the trigger is released.

Final rule 2018R-22F, which further defines the term “**machinegun**,” became effective on March 26, 2019. The final ruling clarifies the term “**automatically**” (found in the NFA, 26 U.S.C. § 5845(b)) as it modifies “shoots, is designed to shoot, or can be readily restored to shoot,” means functioning as the result of a self-acting or self-regulating mechanism that allows the firing of multiple rounds through a single function of the trigger.

Additionally, the rule states “**single function of the trigger**” means a single pull of the trigger and analogous motions (27 CFR §§ 478.11 and 479.11). However, the term “trigger” is not defined by Federal law.

The term “trigger” is generally applied by the firearm industry to the mechanism that causes the firing sequence to begin, usually by releasing an energized component. The term “trigger” regarding Federal firearm laws, particularly the GCA and NFA, is context specific. Simply put, the “trigger” initiates the firing sequence.

Federal courts have noted that automatically means that the weapon “fires repeatedly with a single pull of the trigger.” *Staples v. United States*, 511 U.S. 600, 602 n. 1 (1994). “That is, once its trigger is depressed, the weapon will automatically continue to fire until its trigger is released, or the ammunition is exhausted.” *Id.* Courts have specifically affirmed ATF’s interpretation that a single act of the shooter to initiate the firing sequence is a single function of the trigger. *Akins v. United States*, 312 F. App’x 197, 200 (11th Cir. 2009); *Freedom Ordnance Mfg., Inc. v. Brandon*, No. 3:16-cv-00243-RLY-MPB (S.D. Ind. Mar. 27, 2018). *United States v. Fleischli*, 305 F.3d 643, 655 (7th Cir. 2002) (in which electronic switch was the trigger when it served to initiate the firing sequence and the minigun continued to fire until the switch was turned off or the ammunition was exhausted). In the *Freedom Ordnance* case, the United States District Court of Indiana held that ATF was not arbitrary and capricious in the classification of an “electronic reset assist device” as a machinegun even though the firearm’s trigger reset before each shot by pushing the trigger forward. *Freedom Ordnance Mfg., Inc.*, No. 3:16-cv-00243-RLY-MPB. In these cases, a firearm is a machinegun when it uses an internal mechanism or operation that automatically forces the trigger forward allowing the weapon to fire more than one shot by a continuous pull of the trigger.

ATF has a long history of examining devices which manipulate the trigger of a firearm. As part of the examination process, I researched other trigger devices, some of which ATF has previously examined and classified and some of which it has not. This was completed to research the classification history of devices which may or may not have worked similarly and to maintain consistency in those classifications. These devices include, but are not limited to, the following:

- Rare Breed Triggers, model FRT-15 (classified as a machinegun, 2021 #317388)
- [REDACTED] model AR1 (classified as a machinegun, 2018 #307385)
- Wide Open Enterprises, model Wide Open Trigger (classified as a machinegun, 2021 #317970)
- Flex-Fire Technology
- [REDACTED] “trigger reset device” (classified as a machinegun, 2017 #307369)
- [REDACTED] (classified as a machinegun, 2006 #2006-1060)
- [REDACTED] “forced reset trigger” (classified as a machinegun, 2004 #254498)
- Tac-Con 3MR (not classified as a machinegun, 2013 #301071)
- FosTech ECHO (not classified as a machinegun, 2013 #301397)
- [REDACTED] E-RAD (classified as a machinegun, 2016 #304847)
- [REDACTED] trigger device (classified as a machinegun, 1994 #46717)

Exhibit 42 is a Rare Breed Triggers, model FRT-15, “forced reset trigger” designed to allow drop in installation into AR15-type firearms. The Exhibit is not marked with a serial number.

Exhibit 42 bears the following markings on the right side of its aluminum housing:

- **RARE BREED**
- **-TRIGGERS-**
- **US PAT. 10514223**

I manually function tested the device and noted that in order to pull the trigger, I had to manually disengage the locking bar. In order to further examine the component parts of the Exhibit 42 device, I disassembled the device utilizing a common pin punch and hammer in approximately one minute.

Exhibit 42 is comprised of the following individual component parts:

- One aluminum housing
- One hammer
- One hammer spring
- Two tubular pins
- One trigger
- One trigger spring
- One “locking bar”
- One solid pin
- One locking bar spring
- Two pins with internal threads at both ends
- Four hex head screws with exterior threads

The hammer of the Exhibit 42 device is designed in such a way that it only incorporates one sear surface. This is different from a standard semiautomatic AR15-type hammer, which incorporates two sear surfaces. The second sear surface in a semiautomatic AR15-type firearm is designed to interact with the disconnector. A disconnector can be described as the part in a semiautomatic firearm that prevents the continued firing of the gun while the trigger remains depressed. Simply put, the disconnector holds the gun at full cock as long as the trigger is held back.

In a M16-type machinegun, the hammer incorporates three sear surfaces. The first two are identical to the semiautomatic hammer in design and location. The addition of the third surface allows the hammer to engage the automatic sear. With an M16-type machinegun (selector in the “automatic” position) the first two sear surfaces are taken completely out of “play” once the trigger is pulled, and only the automatic sear retains the hammer. Similar to the relationship between the locking bar of the FRT-15, once the bolt has completed its firing cycle (described in detail below), the M16-type bolt strikes the automatic sear, disengaging it.

I researched U.S. Patent No.: 10,514,223 B1, seeing that it is marked on the side of the Exhibit. This patent, which was applied for by the manufacturer of the AR1 trigger device, Wolf Tactical LLC (now assigned to Rare Breed Firearms), outlines the design and function of a “firearm trigger mechanism.” The patent describes a “drop-in” trigger mechanism for an AR15-type firearm, as discussed below. This patent depicts a device which is virtually identical in geometry, but functions in the same manner as the Rare Breed Firearms FRT-15.

U.S. Patent Number 10,514,223 B1 includes illustrations which closely parallel the Exhibit 42 Rare Breed FRT-15 device in its “drop-in” concept, though having differing geometry in its component parts (see attached patent) such as the hammer, trigger, and “locking bar.” The device is designed to allow “drop-in” installation into an AR15-type firearm and function in conjunction with an H3 weight buffer and M16-type machinegun bolt carrier rather than a standard semiautomatic AR15-type bolt carrier. The M16-type bolt carrier incorporates a contact surface that is unnecessary on AR15-type semiautomatic firearms because this surface is designed to “trip” the automatic sear in standard M16-type machineguns. This surface is utilized to similarly “trip” the “locking bar” in FRT-15 equipped AR15-type firearms during the operating cycle. The M16-type bolt carrier interacts with the “locking bar” in the same manner that it interacts with an automatic sear. Indeed, it is telling that in the attached patent, Wolf Tactical LLC Patent.: U.S. 10,514,223 B1, includes the following in 4, 50, and 55 (emphasis in red added):

The bolt carrier assembly 52 used with the embodiments of this invention can be an ordinary (mil-spec) M16-pattern bolt carrier assembly, whether operated by direct impingement or a gas piston system, that has a bottom cut position to engage an auto sear in a fully automatic configuration. The bottom cut creates an engagement surface 54 in the tail portion 56 of the bolt carrier body 58. This is distinct from a modified AR15 bolt carrier that is further cut-away so that engagement with an auto sear is impossible.

U.S. Patent No.: 10,514,223 B1 also includes the following explanation revealing that the “locking bar” serves the same function as an automatic sear in a typical machinegun – to capture a fire control component until the additional surface on an M16-type bolt carrier contacts it and releases the fire control component to automatically fire a subsequent shot (emphasis added in red).

(57) Abstract

The locking bar is pivotally mounted in a frame and spring biased toward a first position in which it mechanically blocks the trigger member against the spring bias to a second position when contacted by the bolt carrier reaching a substantially in-battery position, allowing the trigger member to be moved by an external force to a released position.

...

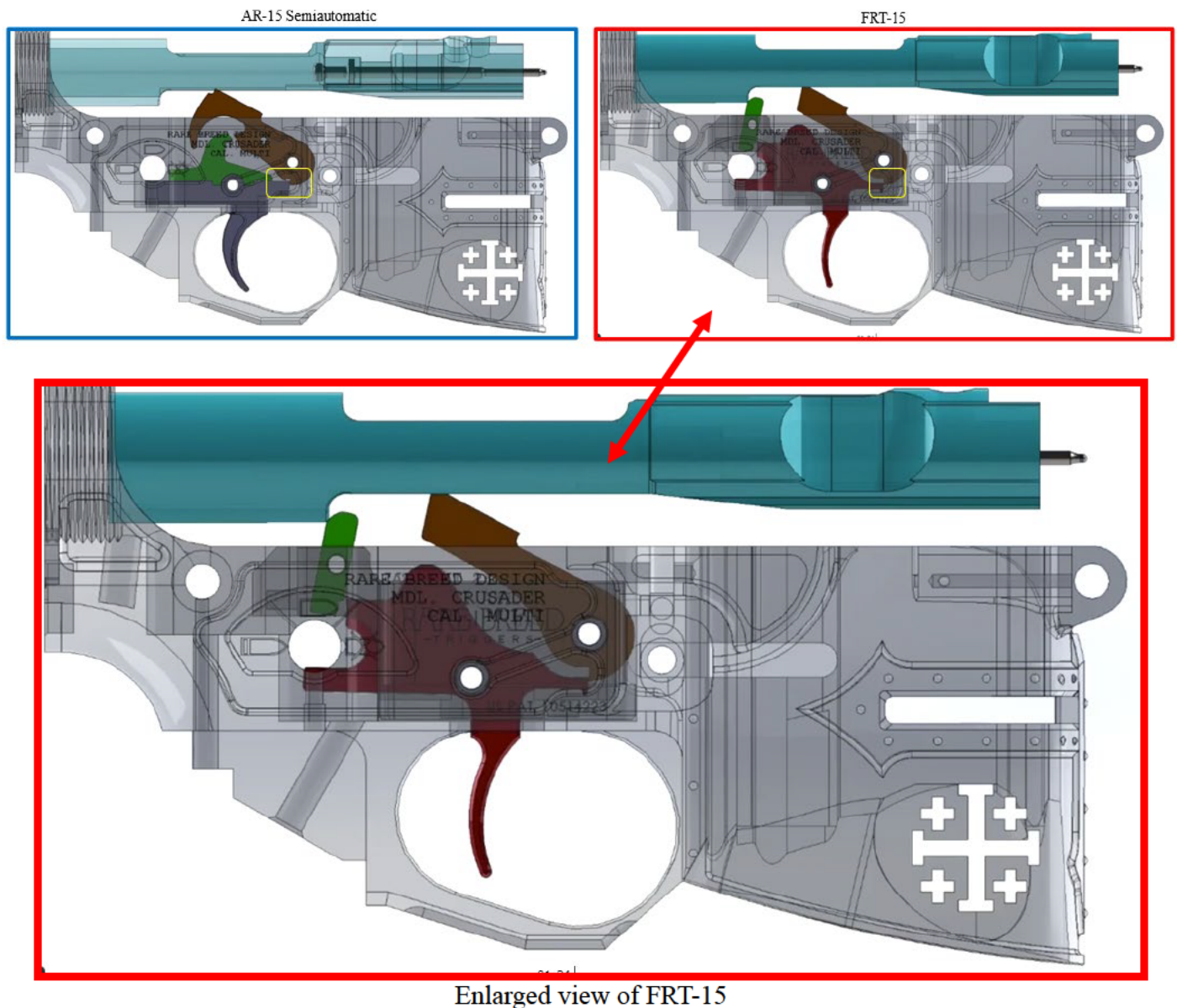
4 (65) – 5 (2)

An upper end of the locking bar 62 extends above the upper edge of housing 12 and lower receiver 50 to be engaged by the engagement surface 54 of the bolt carrier body 58 when the bolt carrier assembly is at or near its in-battery position.

This “external force” allowing the trigger member to be moved to a released position, is merely the continuous pressure applied to the trigger during the initial single continuous function (pull) of the trigger. With both an FRT-15 equipped AR15-type firearm, and an M16-type machinegun (with the selector set in its “automatic” position), the shooter maintains a constant rearward pull of the trigger to fire subsequent shots with a single function (pull) of the trigger, through both the M16-type machinegun and FRT-15 equipped AR15-types self-acting or self-regulating mechanisms during the operating cycle of the firearms.

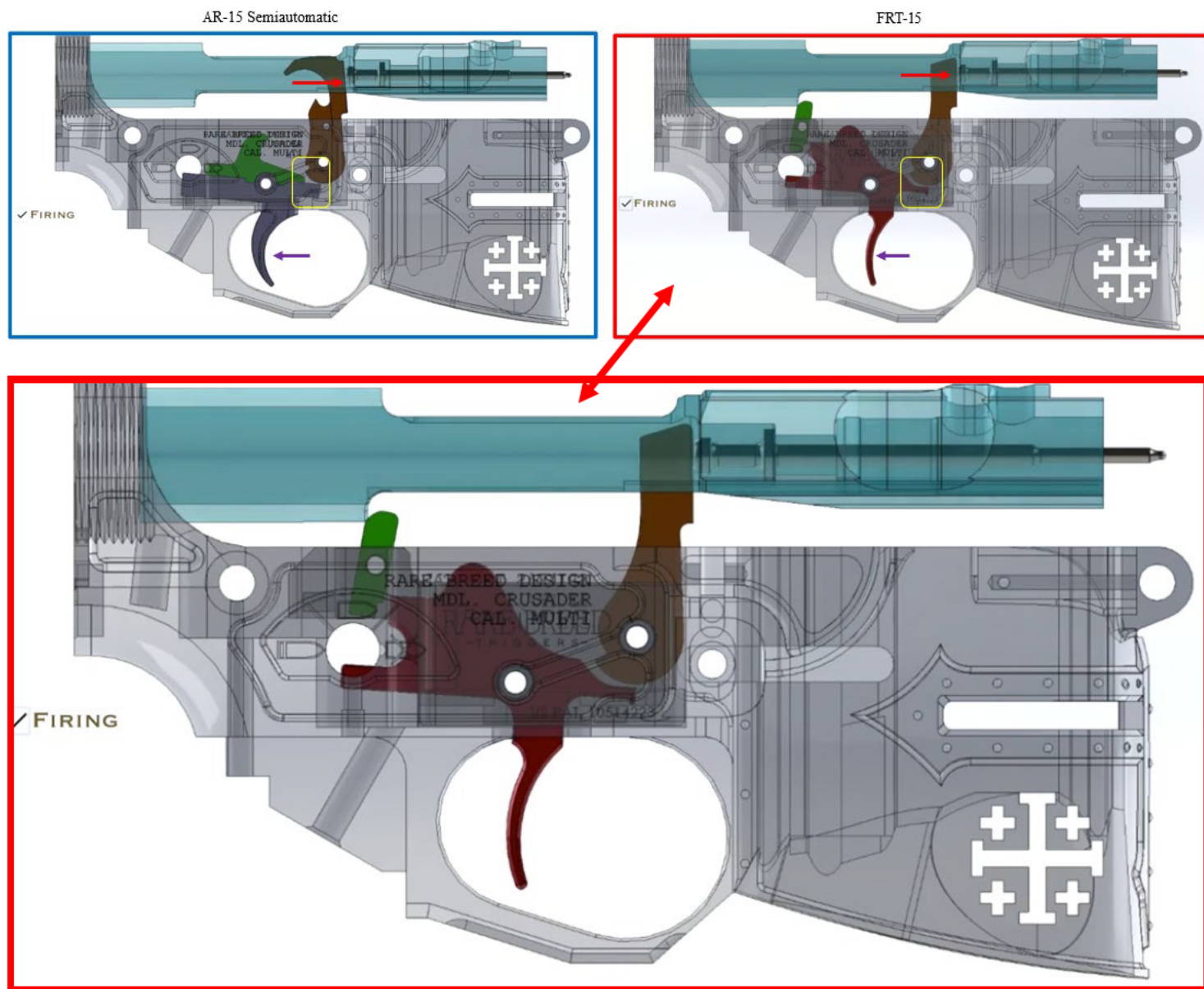
Basic operation of the Rare Breed Triggers FRT-15 device installed within an AR15-type firearm having a M16-type machinegun bolt carrier is as follows (images pulled from a video animation previously available on Rare Breed Triggers website, showing comparative views of the semiautomatic AR15-type and FRT-15 mechanisms, with added ATF text and highlights):

- Image of semiautomatic AR15-type (left) and FRT-15 equipped firearm (right) with both firearms ready to fire with the hammer in a “cocked” position being held by the sear surface on the front of the trigger (yellow box).



Firing:

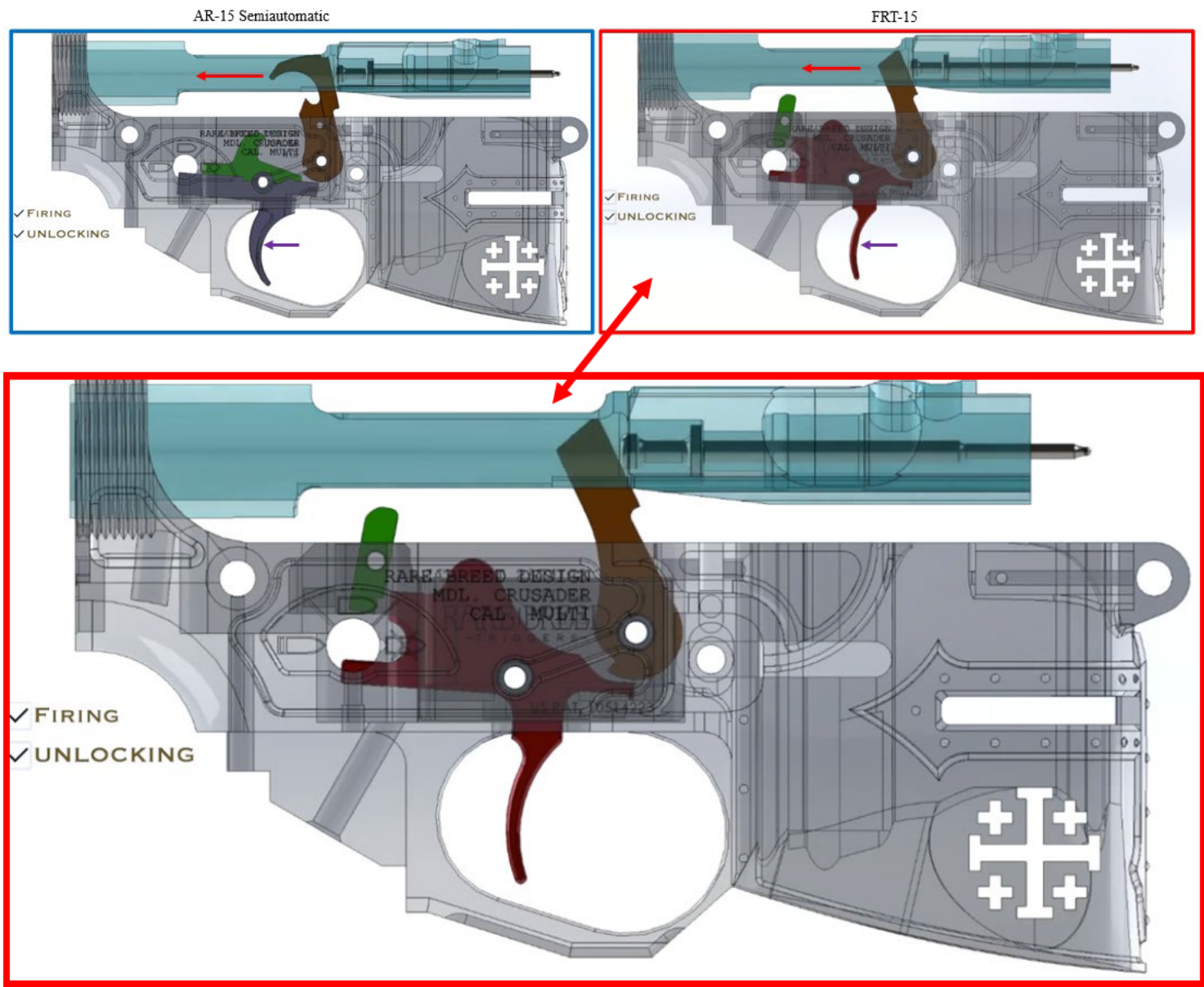
- Rearward pressure is applied to “pull” the trigger, thus releasing the hammer, which falls impacting the firing pin and discharging the primer, which then ignites the propellant powder to accelerate the projectile (bullet) down the rifled bore.



Enlarged view of FRT-15

Unlocking:

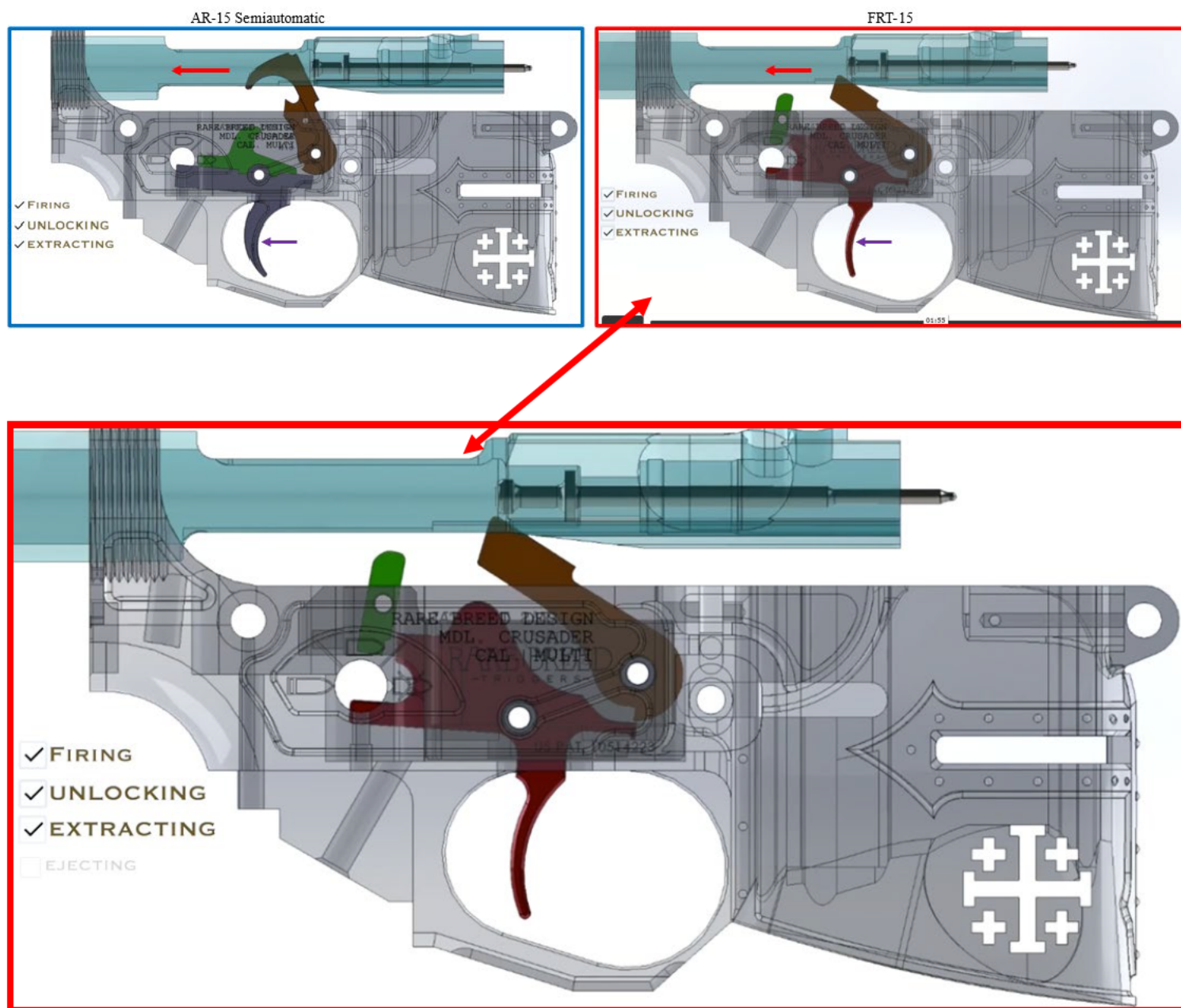
- As the projectile moves past the gas port, a quantity of the gas is bled off through the gas port to the gas tube, and subsequent bolt carrier key into a cylindrical section in the bolt carrier where it expands and drives the bolt carrier rearward. Note that this happens **rapidly** while rearward “pull” pressure from the trigger pull is generally maintained on the trigger. During the initial rearward travel of the carrier assembly, the bolt is rotated by the cam pin, acted on by the bolt carrier cam slot. This rotation disengages the bolt lugs from the barrel extension lugs so the bolt is unlocked. The bolt carrier group then continues rearward with the unlocked bolt assembly which starts to act upon the hammer.



Enlarged view of FRT-15

Extracting:

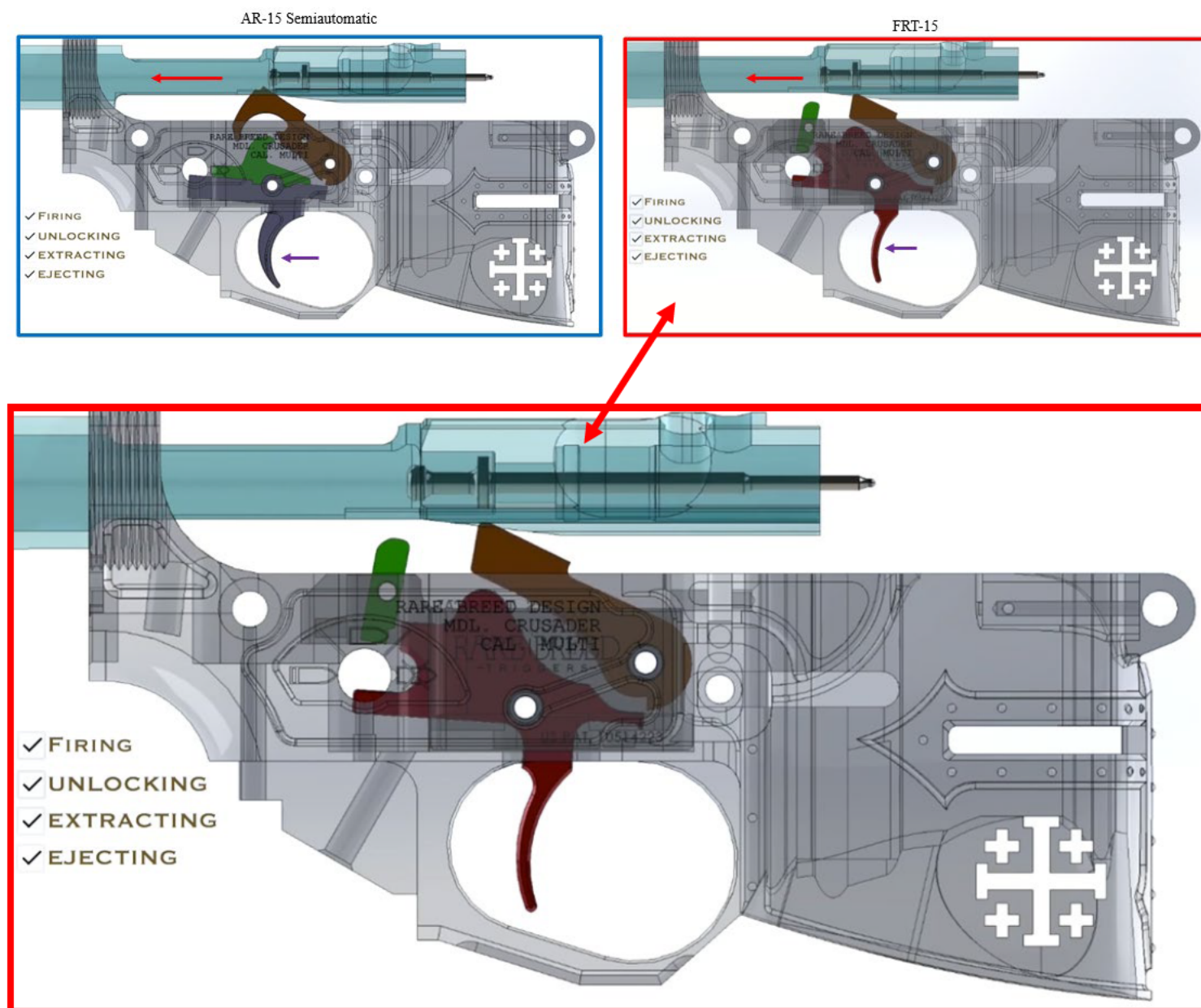
- The fired cartridge case is extracted/withdrawn from the chamber as the bolt carrier group continues its rearward travel, also continuing to further depress the hammer.



Enlarged view of FRT-15

Ejecting:

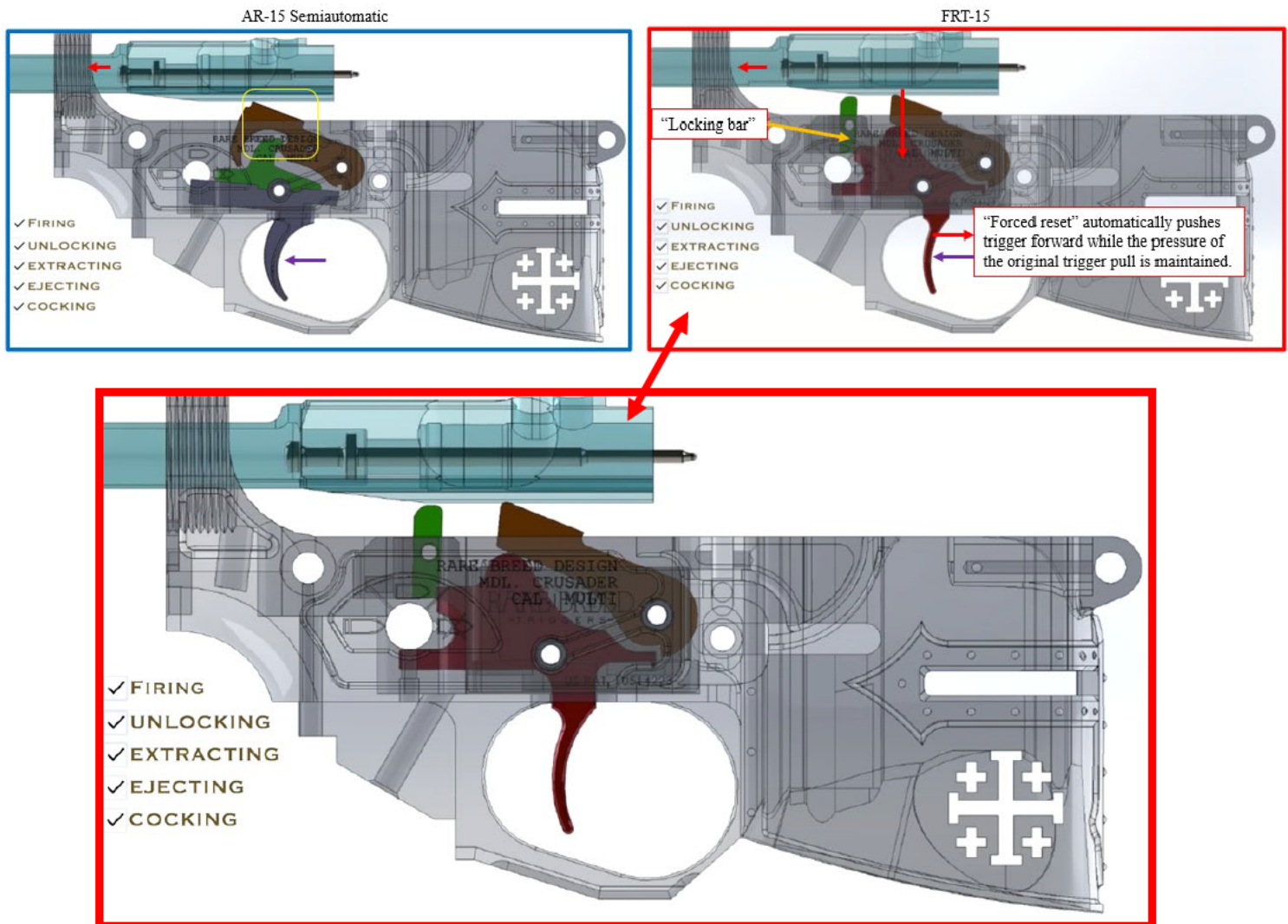
- As the spent case is fully extracted/withdrawn from the chamber, the spring-loaded ejector, acting against the left side of the case head, pushes the spent case out of the ejection port. The bolt carrier group continues rearward, still depressing the hammer.



Enlarged view of FRT-15

Cocking:

- At this point, the operation of a firearm with an FRT-15 (right and bottom images) differs from a semiautomatic AR15-type firearm (left image). In a semiautomatic AR-15-type firearm, the hammer is pushed down by the bolt carrier and is retained by the disconnector and held there until the shooter releases the trigger (done after *feeding* and *chambering*), the disconnector releases the hammer, and the hammer comes to rest on the trigger sear surface, ready to expel a second projectile with a subsequent pull of the trigger. *Conversely, in the FRT-15 equipped firearm*, as the bolt carrier group continues rearward, the hammer is pushed down by the bolt carrier group, but it also pushes down on the trigger, which forces it forward. The trigger is pushed slightly forward as an automatic consequence of the FRT-15 design without any further action required by the shooter. This causes the hammer to engage the trigger sear surface. Differing from a standard semiautomatic firearm, the unique FRT-15 trigger design also engages the “locking bar” to momentarily keep the trigger in place so that the shooter may not override the timing of the automatic functioning of the weapon.



Enlarged view of FRT-15

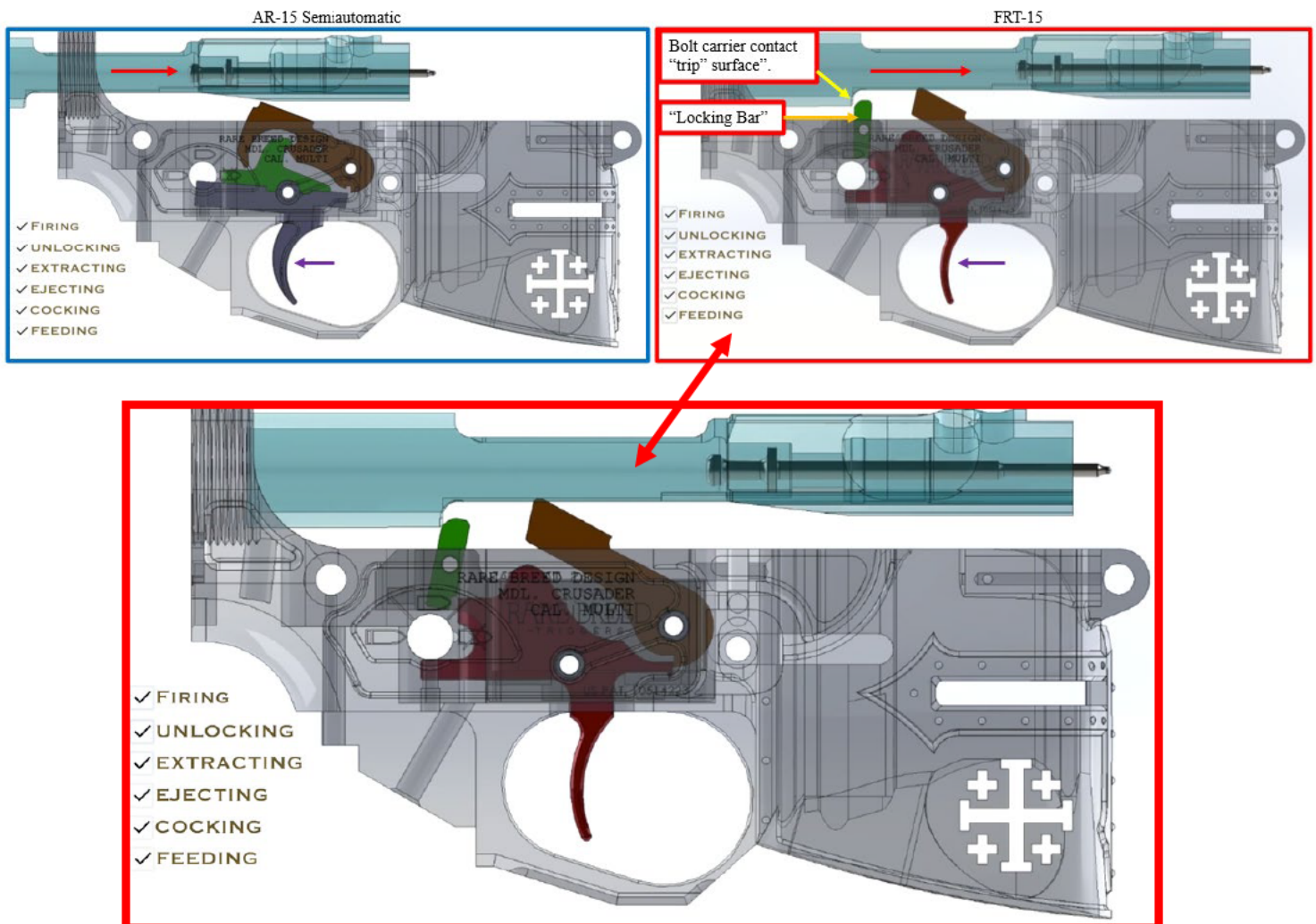
“Timing” in relation to automatic firearms can be described as ensuring that the firing mechanism is not activated until the bolt or breech is fully locked or in battery. Timing is especially important in automatic weapons because if the firing mechanism is engaged before the bolt or breech is fully locked or in battery, two possible outcomes can occur. The first being the firing mechanism *does not* have enough force to ignite the primer, causing a malfunction known as failure to fire, which would cause the shooter to manually clear the malfunction and begin the process over again. The second being that the firing mechanism *does* provide enough force to ignite the primer and an often catastrophic malfunction, known as an “out-of-battery detonation” occurs. An “out-of-battery detonation” occurs when a round is fired without being fully seated in the chamber and the chamber not being fully sealed to contain the explosion. This causes the pressure from the round (e.g.: approximately 55,000 psi in a .223 Remington cartridge) to be released into the action of the firearm, often causing catastrophic damage to the firearm, and possibly the shooter.

It is important to note that at this moment the hammer is solely retained by the trigger sear surface. The trigger, still being pulled rearwards by the shooter is unable to disengage from the hammer because the “locking bar” prevents the trigger from dropping out of engagement with the hammer. This is done to prevent the firearm from operating in what is known as a “hammer follow” condition. “Hammer follow” is described as when the hammer is not retained by the disconnecter and follows the bolt as it feeds the cartridge into the chamber. Without mechanical delay in hammer travel imparted, the hammer fall is uncontrolled and may lack sufficient force to detonate the primer of the cartridge. Hammer follow AR-type firearms that shoot automatically are classified as “**machineguns**.”

This section is intentionally left blank.

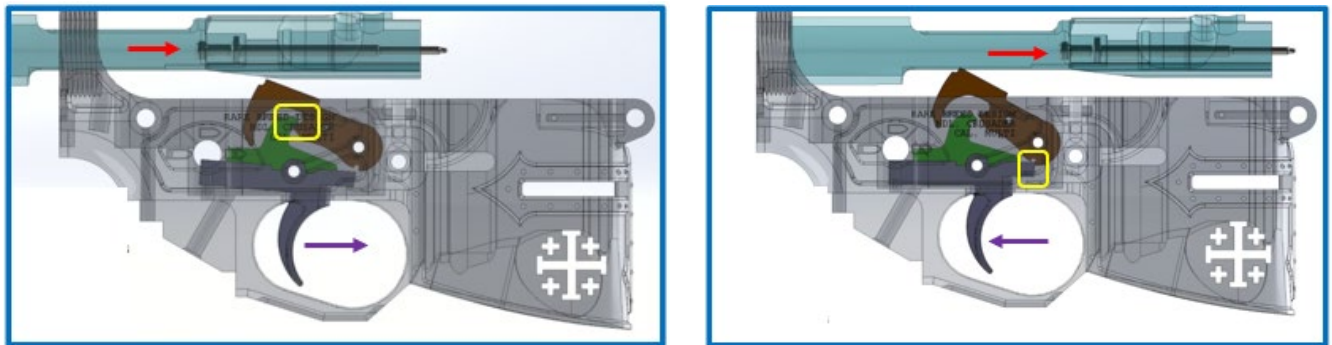
Feeding/Chambering:

- As the bolt carrier moves forward into battery, using the force of the action spring, the front of the bolt removes the next round from the magazine and feeds it into the chamber. Once the bolt is fully locked, and timed properly, the contact surface on the required M16-type machinegun bolt carrier (which is designed to interact with the automatic sear on M16-type firearms), strikes the FRT-15 (right and bottom images) “locking bar,” releasing the trigger, which is still being pulled to the rear by the shooter. The necessity of an M16-type machinegun bolt carrier is clear at this point—it acts on the “locking bar” in the same way it acts on the M16-type machinegun automatic sear. Specifically, when the bolt moves forward into firing position, and is fully locked, it contacts the surface area on the “locking bar” or the automatic sear and automatically fires a subsequent round while the initial single pull is maintained on the trigger. Note that the disconnecter on the semiautomatic AR15-type continues to retain the hammer until the shooter manually releases the trigger.

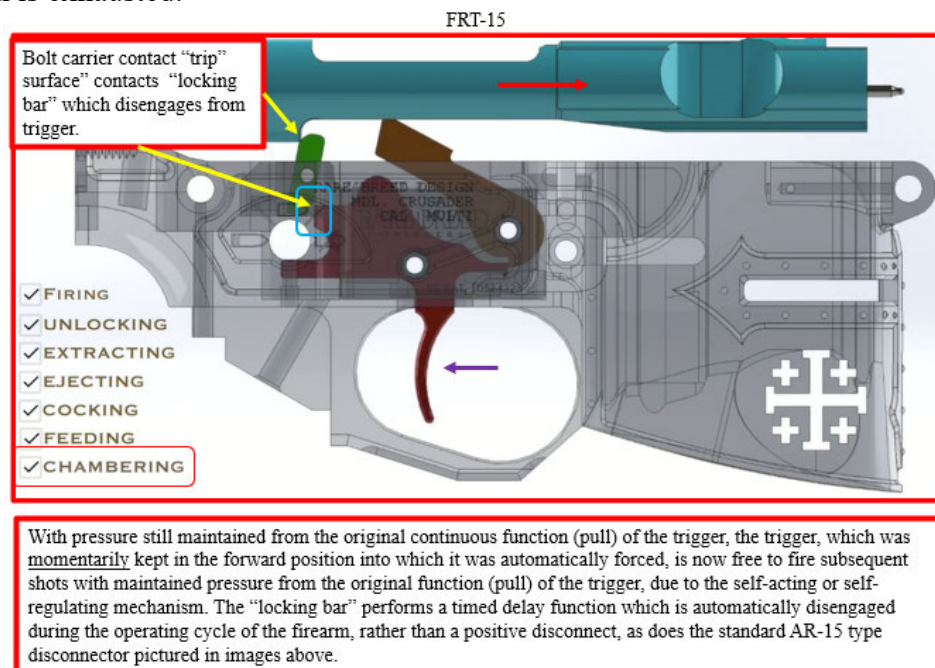


Enlarged view FRT-15

- After firing a shot with a semiautomatic AR15-type firearm, the shooter is required to manually release the trigger which releases the hammer from the disconnector (left image in yellow box) and the hammer comes to rest on the trigger sear surface (right image in yellow box), and then manually pull the trigger a second time to fire a subsequent shot. The disconnector is designed to retain the hammer and “disconnect” or stop the firing cycle from automatically continuing, until the shooter has manually manipulated the trigger by releasing it.



- If the shooter maintains constant rearward pressure from the original single function (pull) of the trigger, the FRT-15 trigger will automatically perform the functions described above in a self-acting or self-regulating mechanism, allowing subsequent projectiles to be fired during the continuing cycle of operation. This self-acting or self-regulating mechanism in the FRT-15 device is the function of the bolt carrier assembly pushing down the hammer, which then pushes down on the trigger, forcing it forward. This is done as an automatic function utilizing the operation of the AR15-type system, with no input needed from the shooter. The “locking bar” is a key component of this self-acting or self-regulating mechanism, as once the bolt carrier assembly has “tripped” the “locking bar,” the firing cycle automatically continues, and will continue until the shooter manually releases the trigger, or the ammunition is exhausted.



From the moment the trigger is pulled, and as long as rearward pressure is applied to the trigger through a single constant pull, a firearm with an FRT-15 continues to fire until the finger is removed from the trigger, the weapon malfunctions, or the ammunition is exhausted. The described firing cycle takes place regardless of the purported “forced reset” pushing the trigger forward.

To demonstrate this, I installed Exhibit 42 into a Daniel Defense model DDM4 (ATF tag number 0581217) AR15-type rifle from the ATF National Firearms Collection (NFC). Installing the Exhibit into the NFC DDM4 was accomplished in approximately five minutes using a commonly available pin punch, hammer, and a standard “flat-head” screwdriver.

I first test fired the NFC DDM4 **without Exhibit 42 installed** on April 20, 2023, at the ATF test range, Martinsburg, West Virginia, using commercially available, Federal brand, .223 Remington caliber ammunition and a magazine from the NFC. I inserted a one-round ammunition load and pulled the trigger. The NFC DDM4 successfully expelled a projectile by the action of an explosive. I then inserted a two-round ammunition load and pulled the trigger. The NFC DDM4 expelled only one round for each separate function of the trigger. Next, I inserted a five-round ammunition load and pulled the trigger; the NFC DDM4 expelled only one round for each separate function of the trigger.

I then test fired the NFC DDM4 **with Exhibit 42 installed** on April 20, 2023, at the ATF test range, Martinsburg, West Virginia, using the same commercially available, Federal brand, .223 Remington caliber ammunition and the same magazine from the NFC. I inserted a one-round ammunition load, with the selector in the “semiautomatic” position and pulled the trigger. The NFC DDM4, with Exhibit 42 installed, successfully expelled a projectile by the action of an explosive. I repeated this same test with the magazine being removed after the cartridge was chambered, and noted that the hammer, rather than remaining in a cocked position, as would normally be the case with a standard AR15-type semiautomatic firearm, after firing one round with a single function (pull) of the trigger, had been released a second time, indicating that Exhibit 42 had initiated a second firing cycle with the original single function (pull) of the trigger. I repeated this method of test-fire one additional time, obtaining the same result.

I then inserted a two-round ammunition load and pulled the trigger; the NFC DDM4, with Exhibit 42 installed, fired both rounds automatically by a single function of the trigger. I repeated this method of test fire two additional times, achieving the same result.

Next, I inserted a five-round ammunition load and pulled the trigger. The NFC DDM4, with Exhibit 42 installed, fired all five rounds automatically, without manual reloading, by a single function of the trigger. I repeated this five-round method of test fire two additional times, achieving the same result.

The FRT-15 “drop-in” device is uniquely designed to interact with the required M16-type machinegun bolt carrier during the cycle of operation **in the same manner** that the M16-type machinegun bolt interacts with the machinegun automatic sear. This allows the weapon to function automatically with the FRT-15 self-acting, or self-regulating mechanism, with one continuous pull of the trigger, and allows the weapon to shoot automatically, more than one shot, without manual reloading, by a single function (pull) of the trigger, until the trigger is manually released by the shooter, or the ammunition is exhausted.

While on standard semiautomatic AR15-type firearms, the cycle of operation is interrupted between shots by a disconnecter which requires that the trigger be both manually released and then manually pulled again to fire a subsequent shot, no such action is required to fire subsequent shots on the FRT-15 equipped AR15-type firearm. Indeed, the FRT-15 design requires only that the shooter maintain the initial trigger pull, while the self-acting or self-regulating FRT-15 mechanism forces the trigger forward during the rearward movement of the required M16-type machinegun bolt carrier, and then automatically releases the trigger and hammer, as the “locking bar” interacts with the “trip surface” on the M16-type machinegun bolt carrier, as the firearm goes into battery. All of these actions occur if the shooter maintains a single, constant pull of the trigger.

For informational purposes, the cyclic rate of fire of an M16-type, M4 machinegun is approximately 700 to 970 RPM as published in U.S. Army Technical Manual TM 9-1005-319-10, page 0002 00-3. To verify this, FTCB has previously tested the rate of fire of a 5.56 caliber M16-type, M4 machinegun, (tag number 0488490) from the ATF NFC utilizing a Competition Electronics brand shot timer to measure the approximate rounds per minute (RPM). This test determined that the average rate of fire of the NFC M16-type, M4 machinegun (tag number 0488490) was **870.4** RPM.

To demonstrate that the cyclic rate of fire with an FRT-15 machinegun conversion device equipped semiautomatic AR-type rifle is comparable to an M16-type machinegun, the same test was previously conducted utilizing a .223 Remington caliber NFC AR15-type semiautomatic rifle receiver (tag number 0550101) equipped with an FRT-15 machinegun conversion device and utilized the same upper assembly, buffer, and recoil spring used with the NFC M16 rate of fire test. This test determined that the average rate of fire of the NFC semiautomatic AR15-type rifle receiver (tag number 0550101) equipped with a Rare Breed Triggers FRT-15 machinegun conversion device was **840.8** RPM.

It is significant to note that following the above outlined test procedure, utilizing the same magazine and ammunition obtained from the same lot, that the measured rate of automatic fire when both triggers were held to the rear with a single constant pull was similar (870.4/840.8) in both weapons' automatic cyclic rates.

Exhibit 42 is a combination of parts designed and intended for use in converting a weapon into a machinegun, and through demonstration, successfully converted the semiautomatic NFC S-15 rifle into a machinegun; therefore, Exhibit 42, is a “machinegun” as defined.

Conclusions:

Exhibit 42 is a “**machinegun**” as defined in 18 U.S.C. § 921(a)(24).

Exhibit 42 is a combination of parts designed and intended, for use in converting a weapon into a machinegun; thus, is a “**machinegun**” as defined in 26 U.S.C. § 5845(b).

Exhibit 42, being a machinegun, is also a “**firearm**” as defined in 26 U.S.C. § 5845(a)(6).

Exhibit 42 bears no NFA manufacturers marks of identification or serial number as required by 26 U.S.C. § 5842.

Special Agent Dean Conigliaro

765040-23-0011

2023-724-AIC

Page 17

Examined By:

**ANTHONY
CIRAVOLO**

Digitally signed by
ANTHONY
CIRAVOLO
Date: 2023.04.27
14:27:12 -04'00'

Anthony Ciravolo
Firearms Enforcement Officer

Approved By:

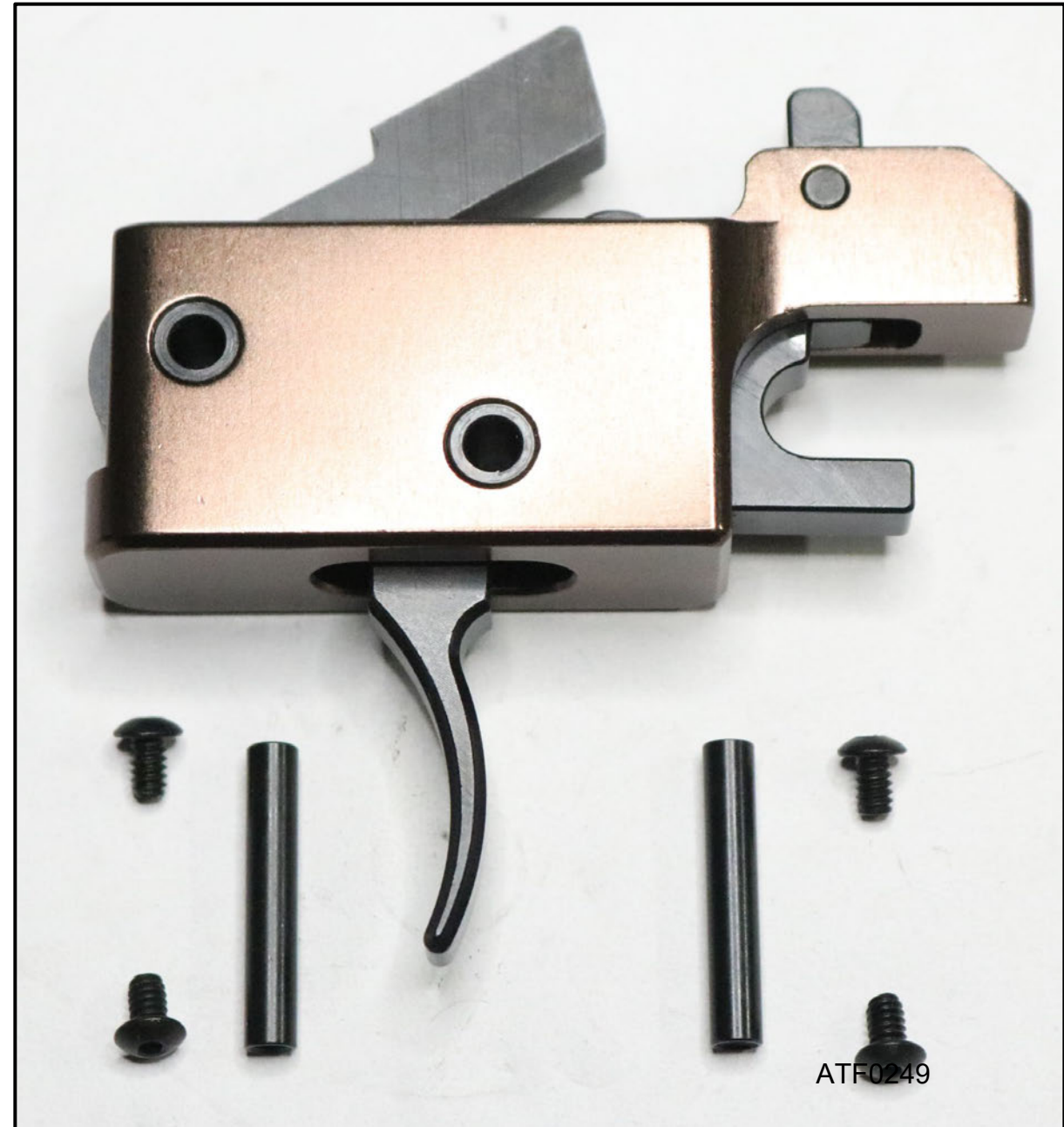
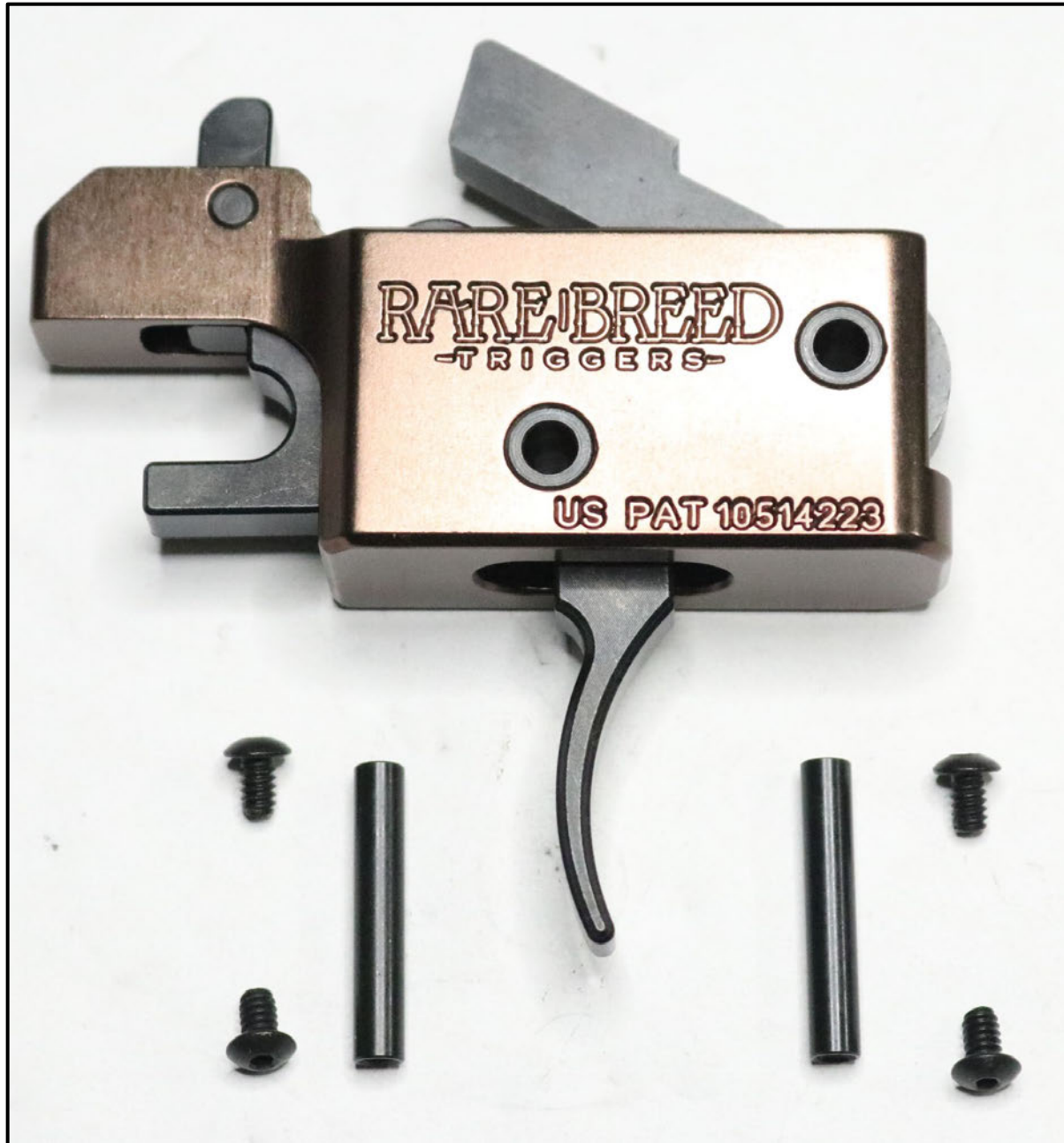
**CODY
TOY**

Digitally signed by
CODY TOY
Date: 2023.04.27
15:05:45 -04'00'

Cody Toy
Chief, Firearms Technology Criminal Branch

Attachment: Thirty pages bearing photographs and U.S. Patent 10,514,223 B1.

This Firearms Technology Criminal Branch report is provided in response to your request for assistance. Please be aware that these documents may constitute "taxpayer return information" that is subject to the strict disclosure limitations provided in 26 U.S.C. § 6103. Exceptions to the non-disclosure provisions that permit the disclosure internally within ATF are set forth in 26 U.S.C. §§ 6103(h)(2)(C) and (o)(1). Any further disclosure of these reports is strictly limited and must be reviewed and approved by the Office of Chief Counsel prior to any information dissemination. Failure to adhere to the disclosure limitations provided in 26 U.S.C. § 6103 could result in civil and/or criminal liability.



ATF0249

Exhibit 42

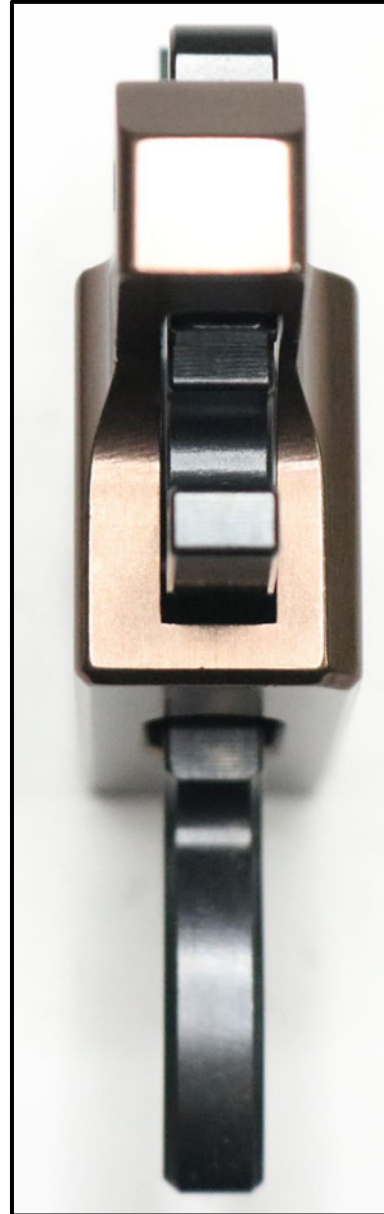
Case 4:23-cv-00830-O Document 77-4 Filed 12/01/23 Page 23 of 50 PageID 2952

765040-23-0011
2023-724-ALC
Page 2

Front



Rear



Bottom

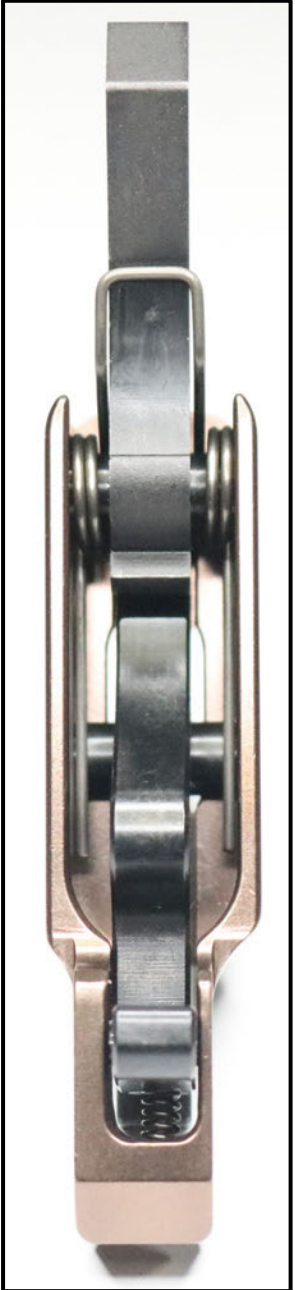


ATF0250

Hammer Cocked



Hammer Released



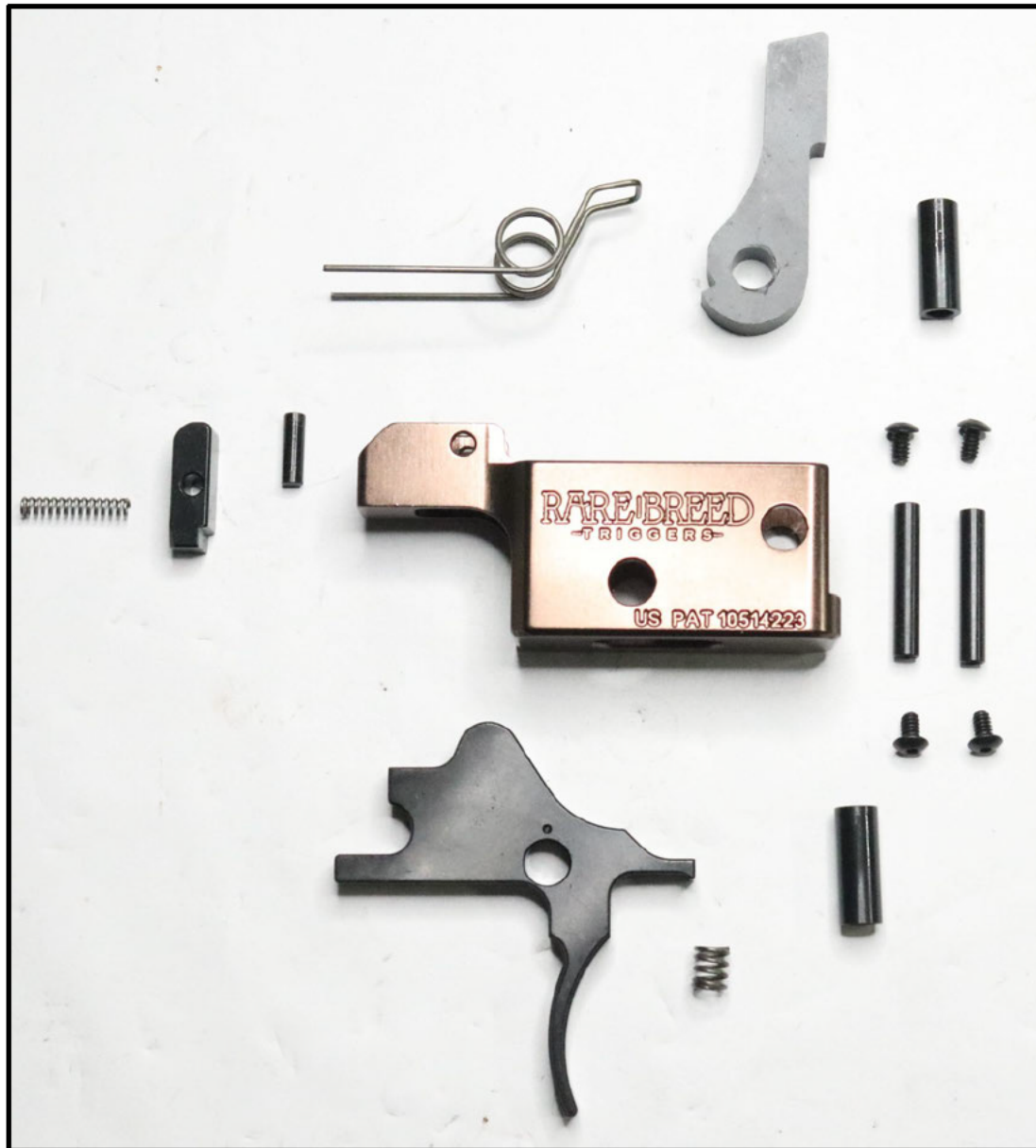


Exhibit 42 Disassembled

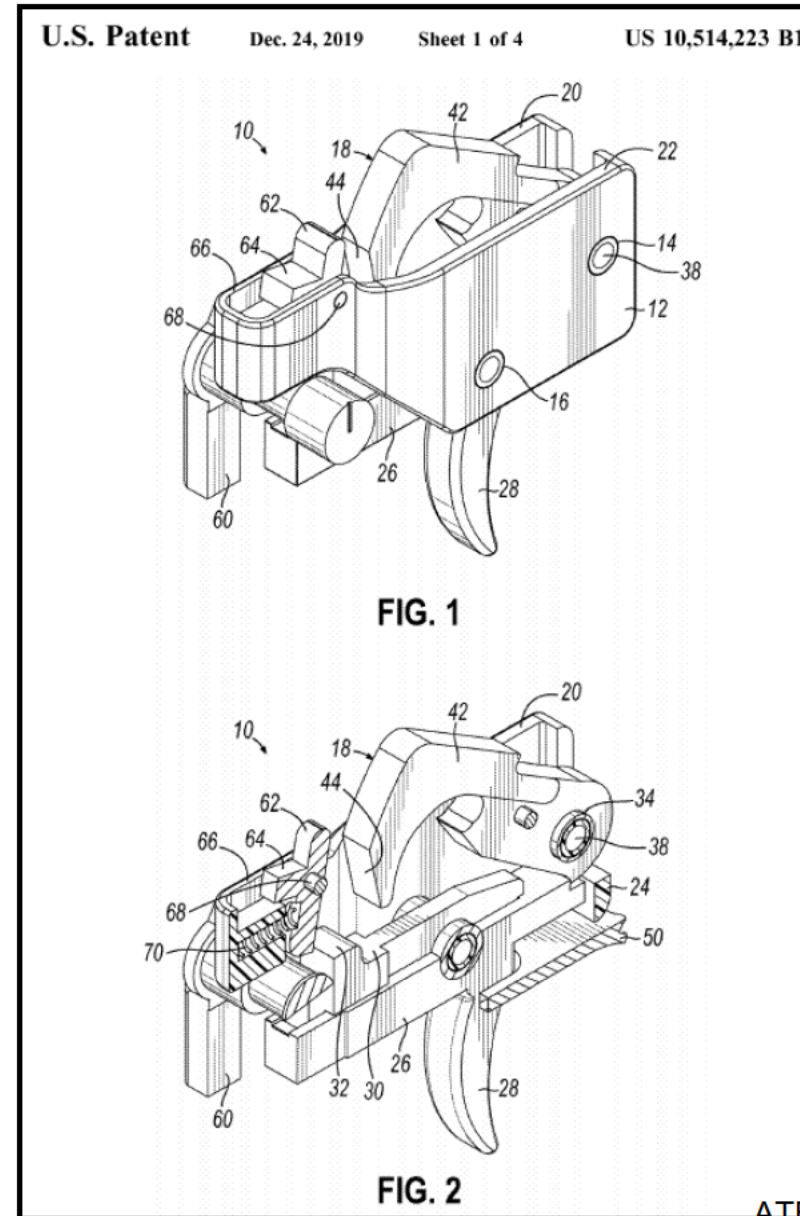
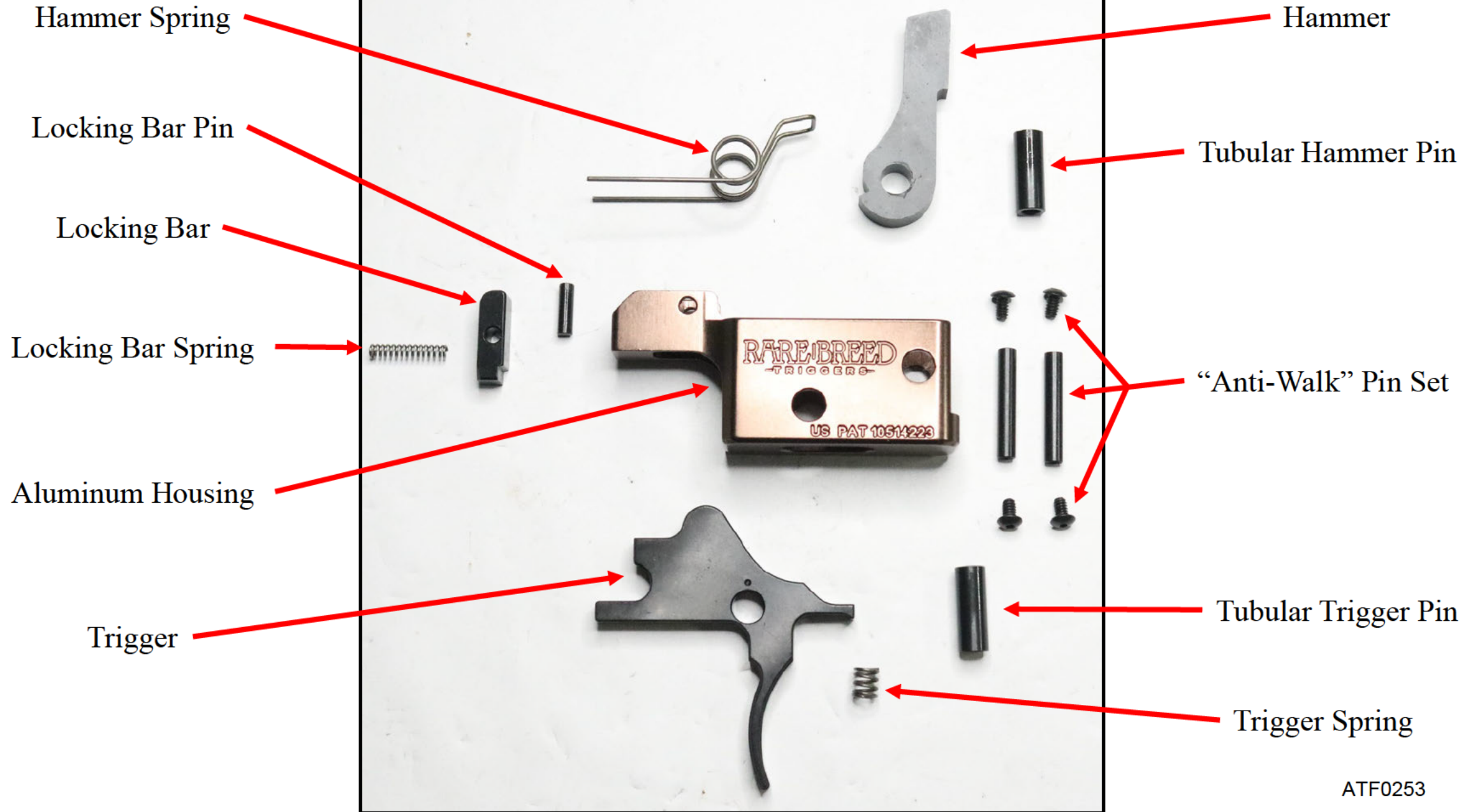


Image contained in Patent No.: U.S. 10,514,223 B1.

Exhibit 42

Case 4:23-cv-00830-O Document 77-4 Filed 12/01/23 Page 26 of 50 PageID 2955

765040-23-0011
2023-724-ALC
Page 5



ATF0253

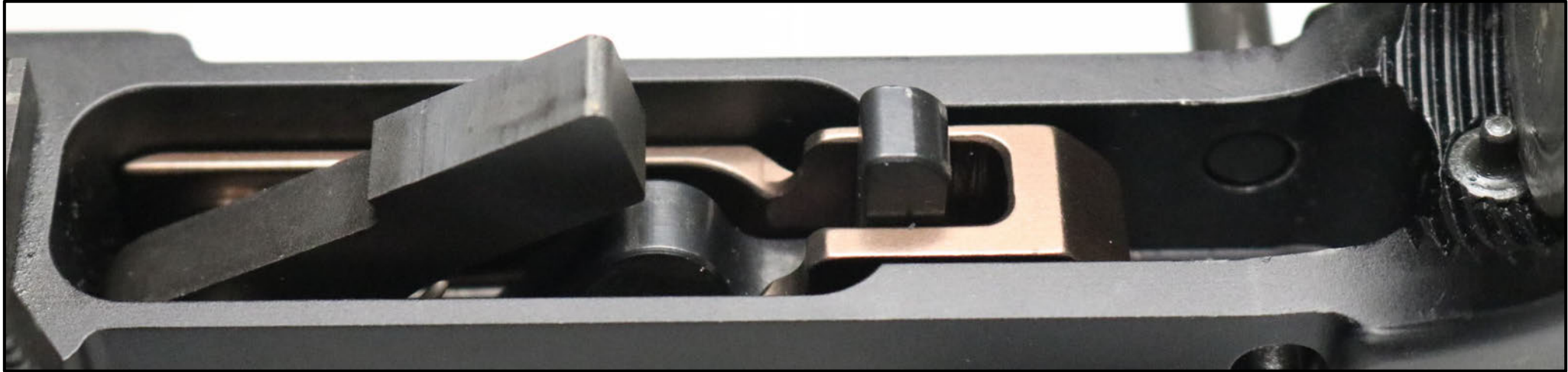


Exhibit 42 Installed in NFC DDM4 (bottom)
Compared to NFC M4 Machinegun (top)

765040-23-0011
2023-724-ALC
Page 7

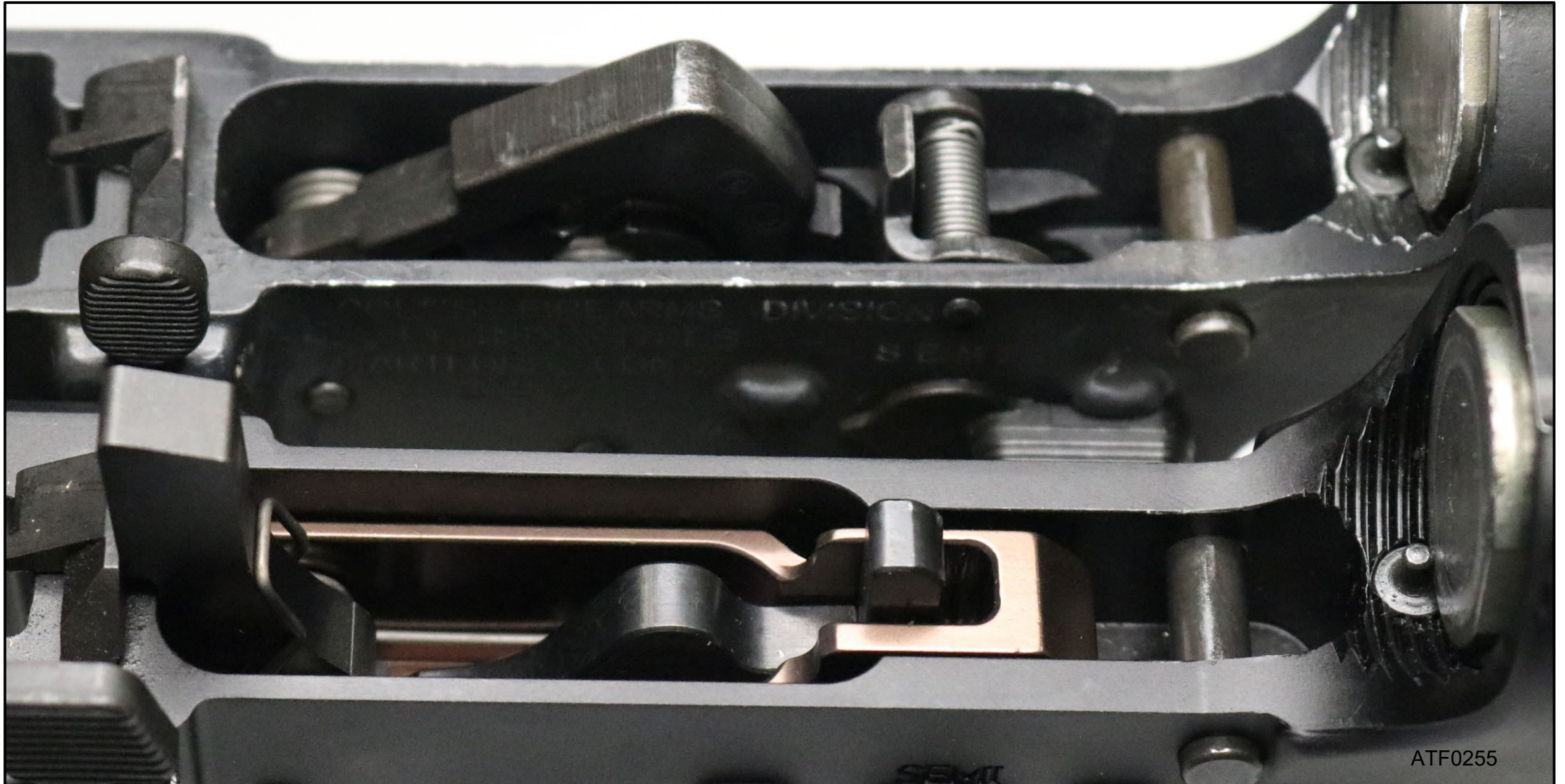


Exhibit 42 Installed in NFC DDM4 (bottom)
Compared to NFC M4 Machinegun (top)

765040-23-0011
2023-724-ALC
Page 8

Case 4:23-cv-00830-G Document 77-4 Filed 12/01/23 Page 29 of 50 PageID 2958



ATF0256

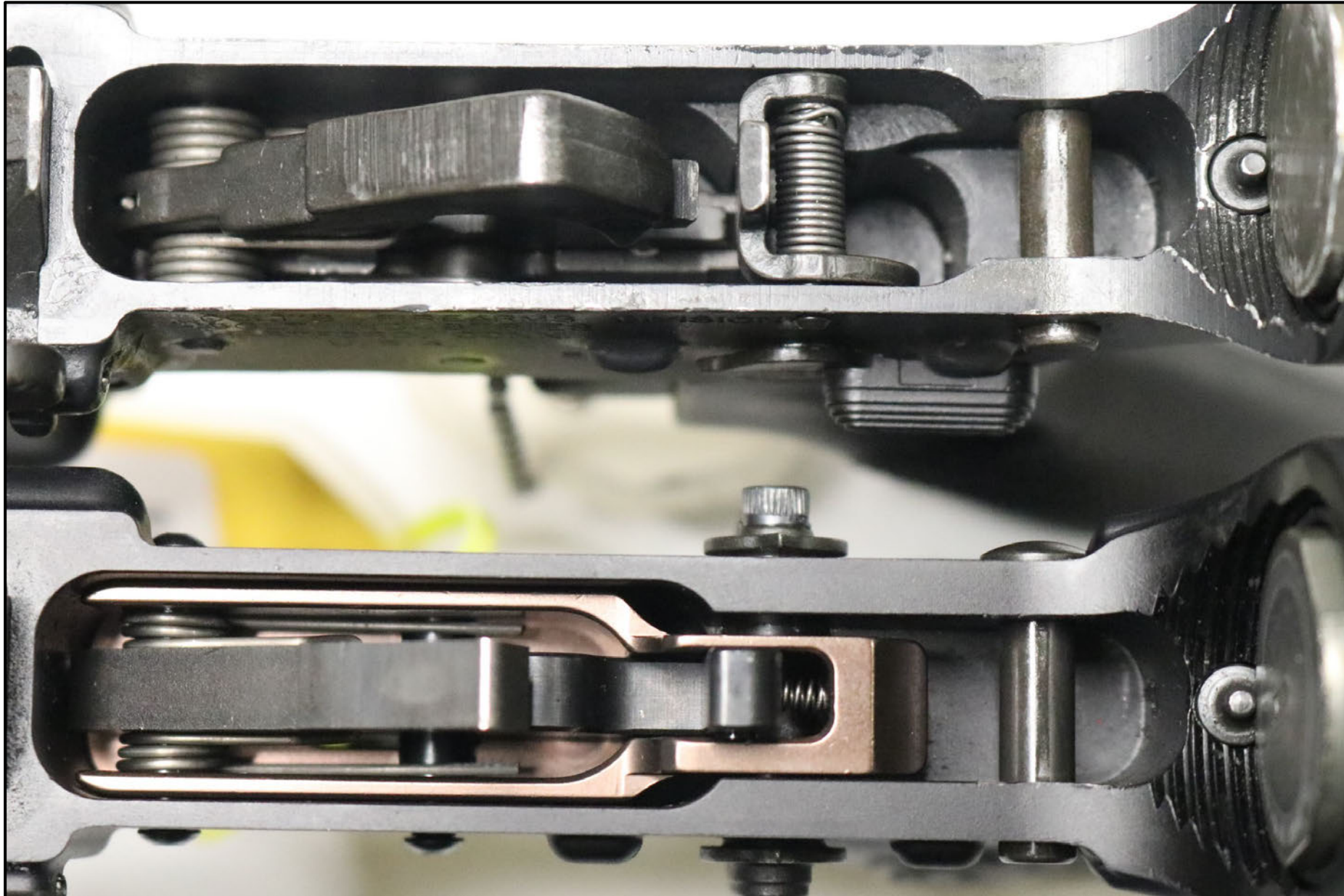
Exhibit 42 Installed in NFC DDM4 (bottom)
Compared to NFC M4 Machinegun (top)

Case 4:23-cv-00830-G Document 77-4 Filed 12/01/23 Page 30 of 50 PageID 2959

765040-23-0011

2023-724-ALC

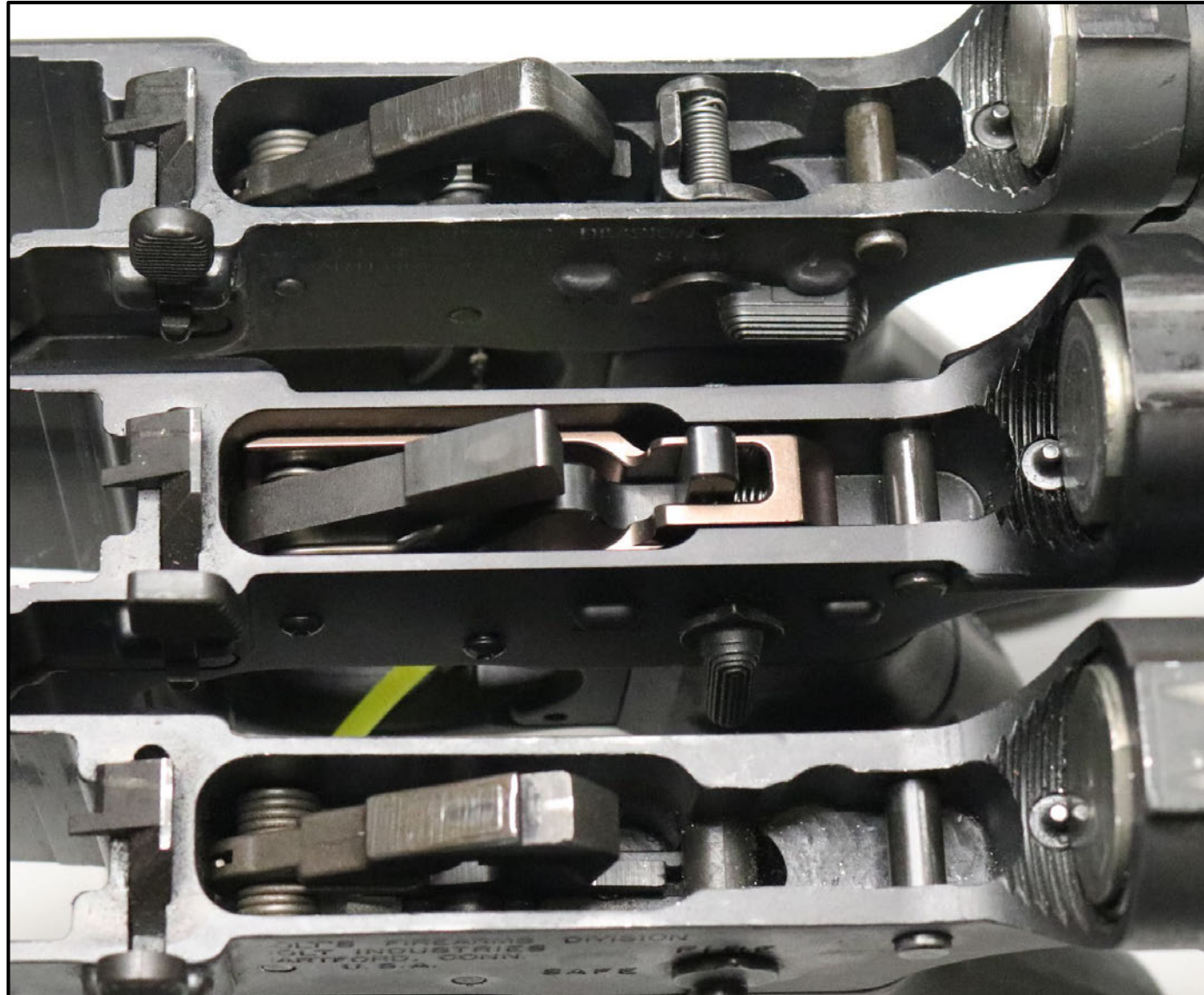
Page 9



ATF0257

Case 4:23-cv-00830-O Document 77-4 Filed 12/01/23 Page 31 of 50 PageID 2960

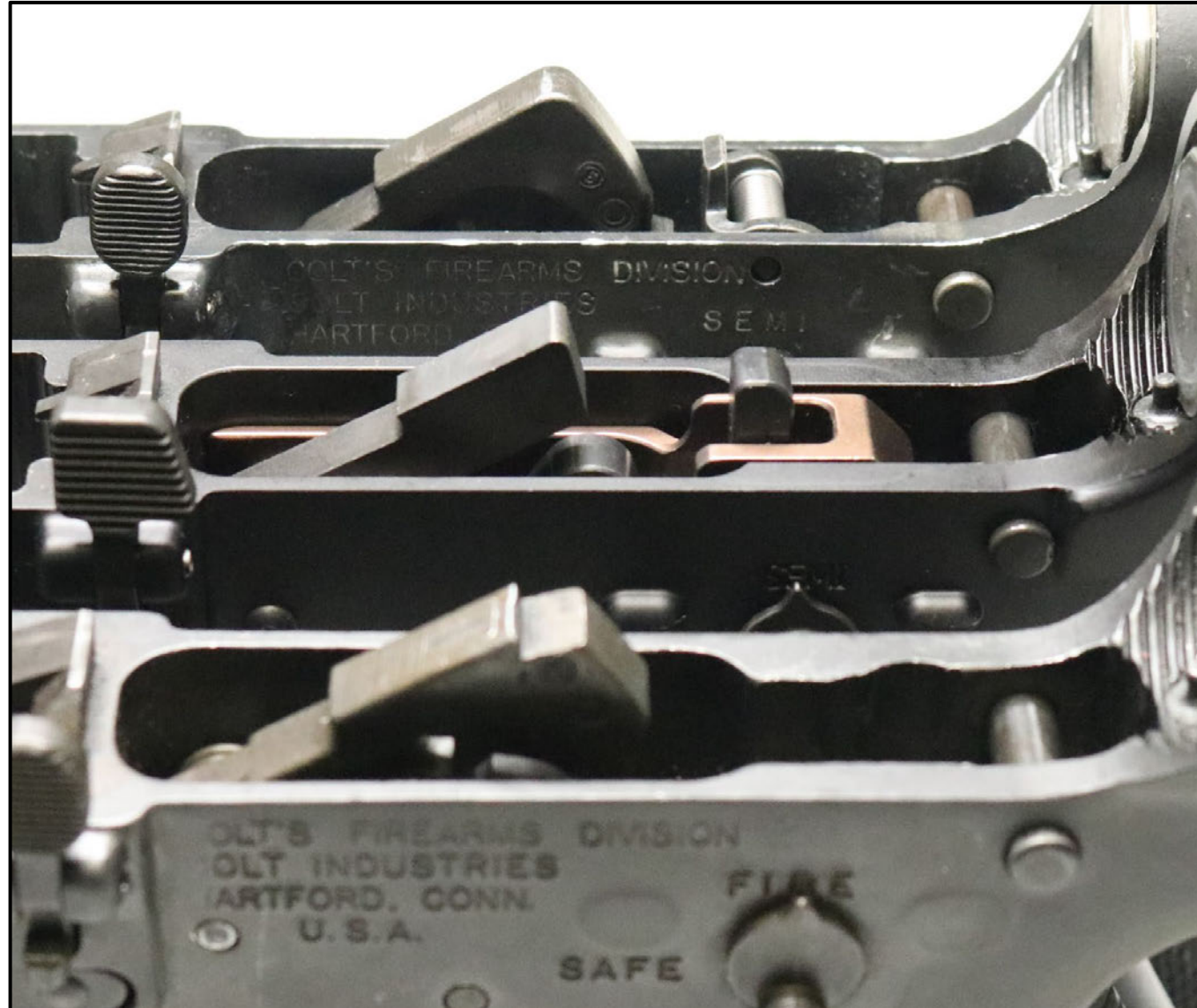
NFC M4 Machinegun (top) Exhibit 42 Installed in NFC DDM4 (middle) NFC Colt SP1 Semiautomatic (bottom)



ATF0258

NFC M4 Machinegun (top)
Case 4:23-cv-00830-O Document 77-4 Filed 12/01/23 Page 32 of 50 PageID 2961

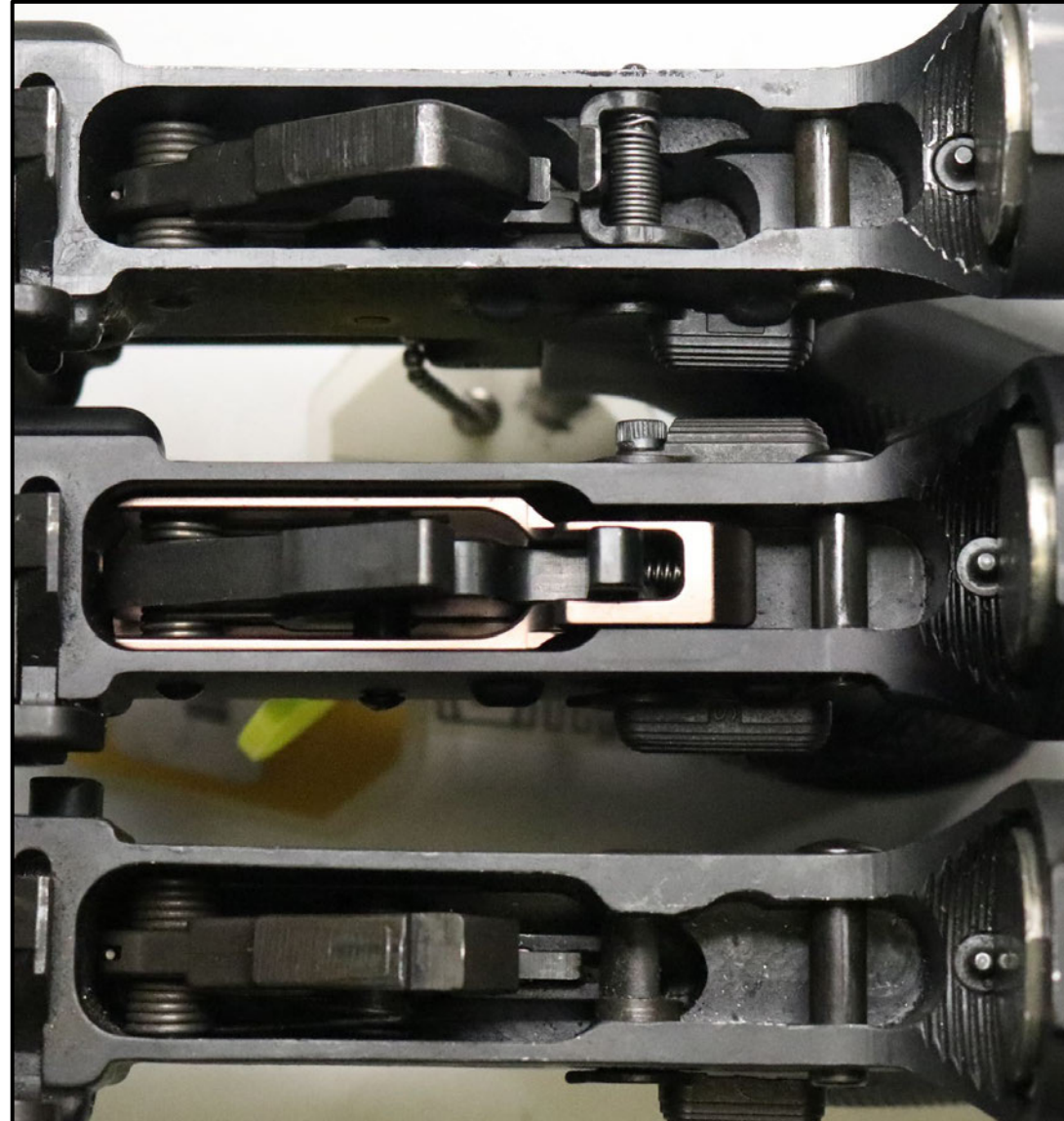
Exhibit 42 Installed in NFC DDM4 (middle)
NFC Colt SP1 Semiautomatic (bottom)



ATF0259

Case 4:23-cv-00830-O Document 77-4 Filed 12/01/23 Page 33 of 50 PageID 2962

NFC M4 Machinegun (top)
Exhibit 42 Installed in NFC DDM4 (middle)
NFC Colt SP1 Semiautomatic (bottom)

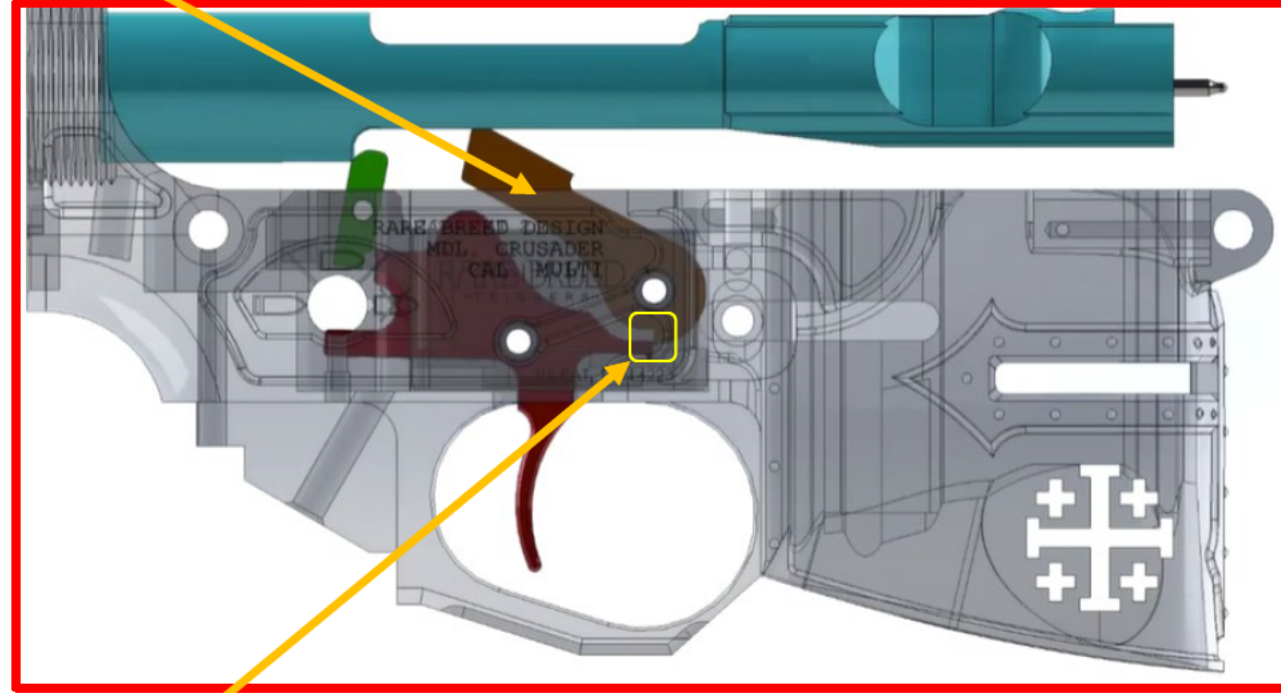
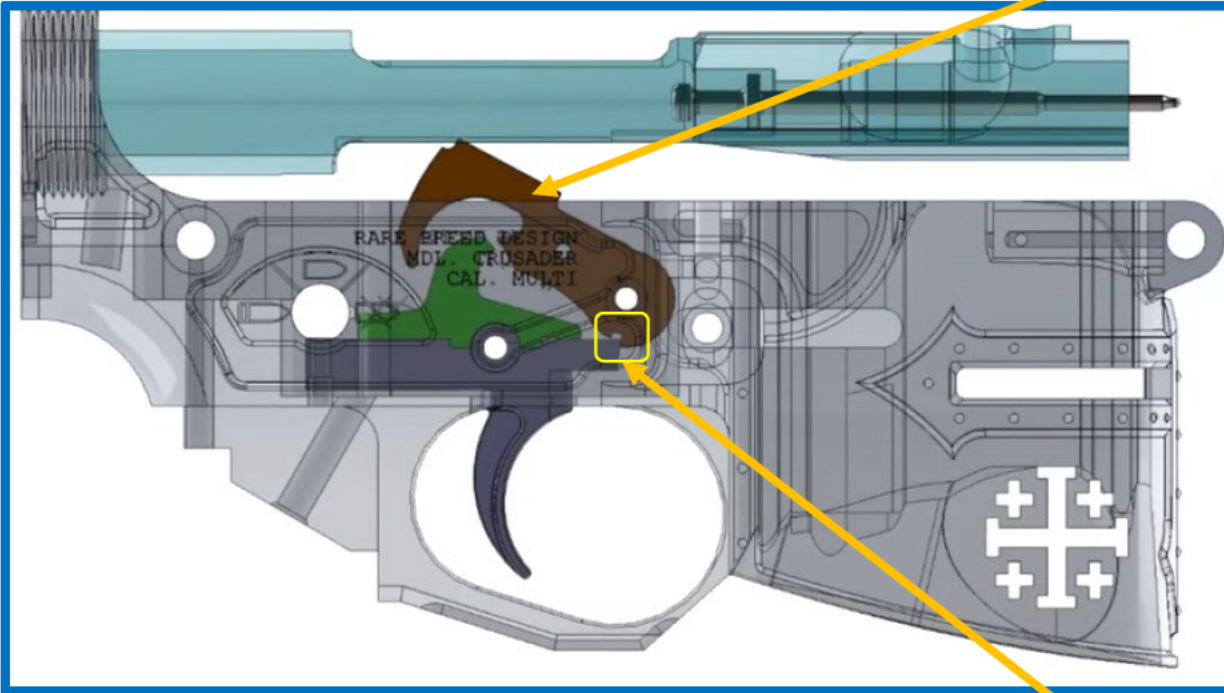


ATF0260

AR15 Semiautomatic

Hammer

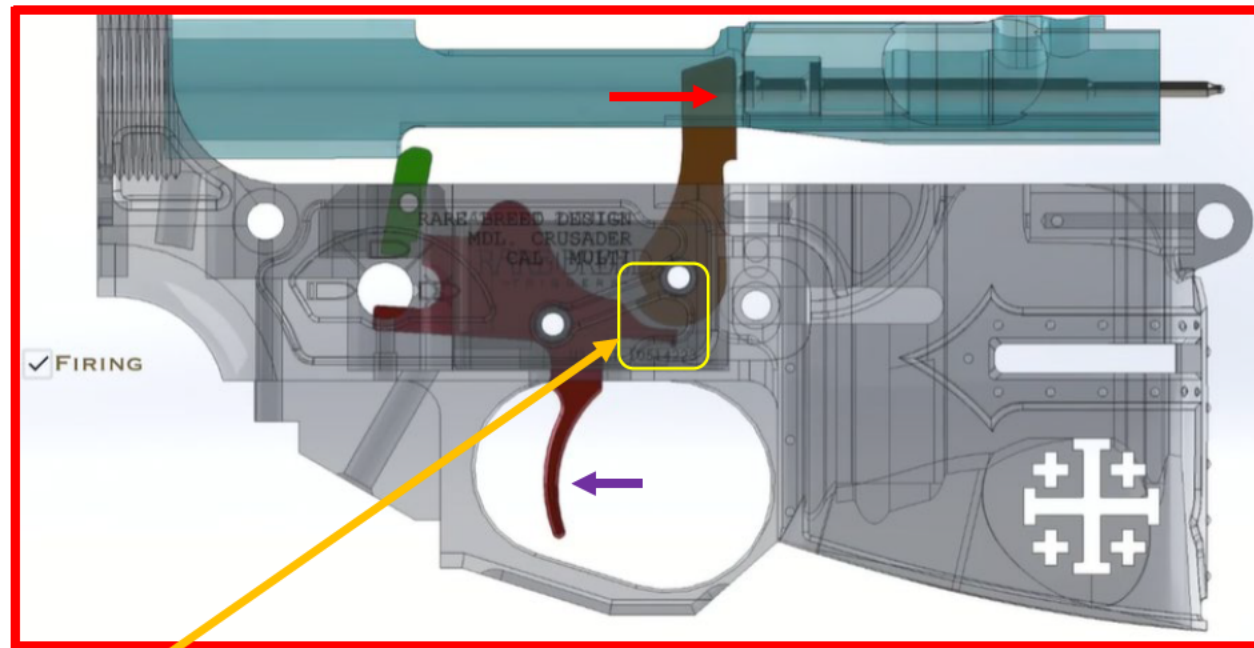
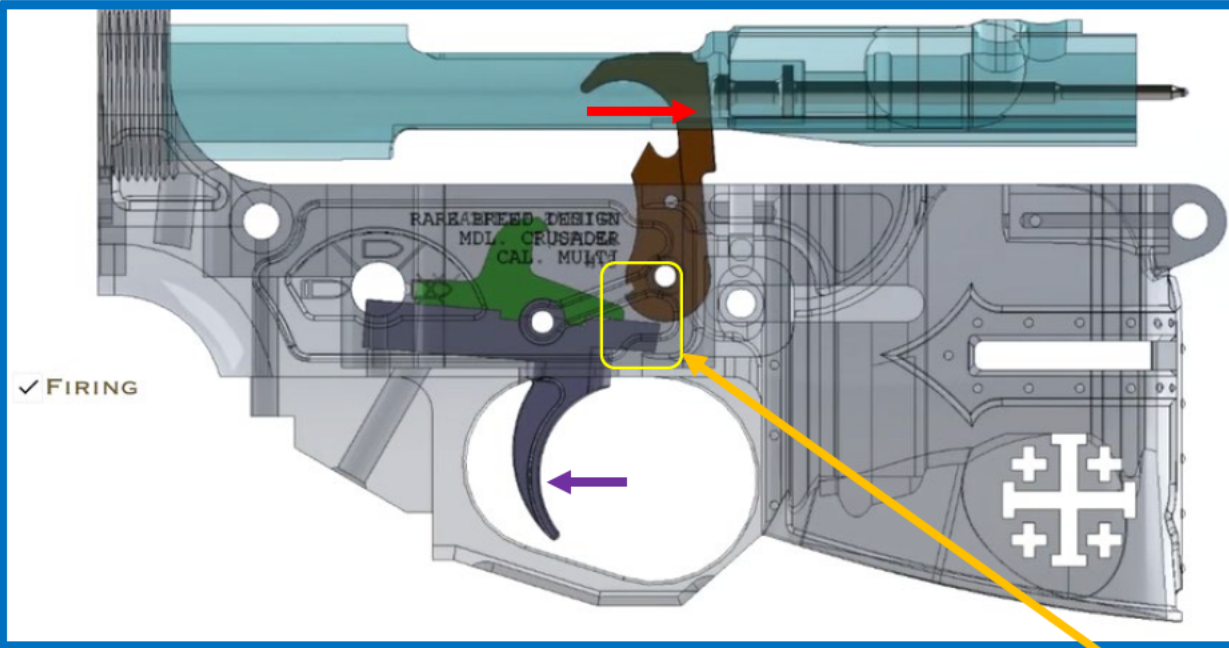
FRT-15



When the trigger is first pulled with the weapon in battery having a cartridge chambered, it causes the sear (located on the front of the trigger), to release the hammer.

AR15 Semiautomatic

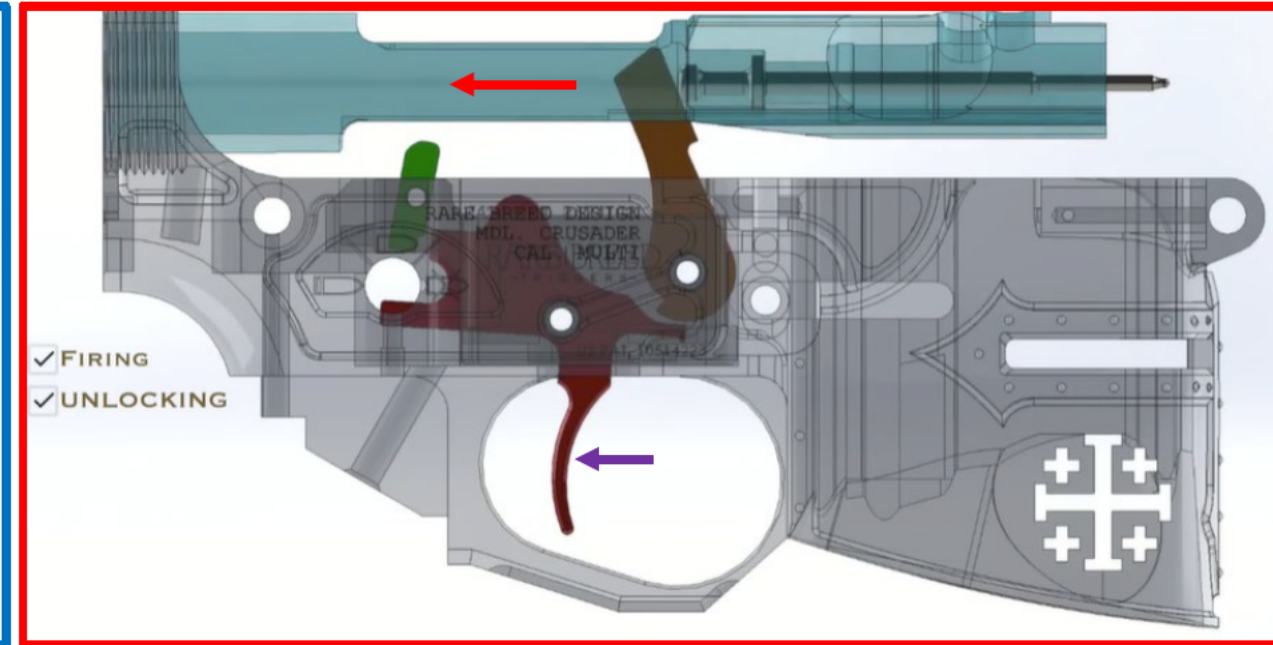
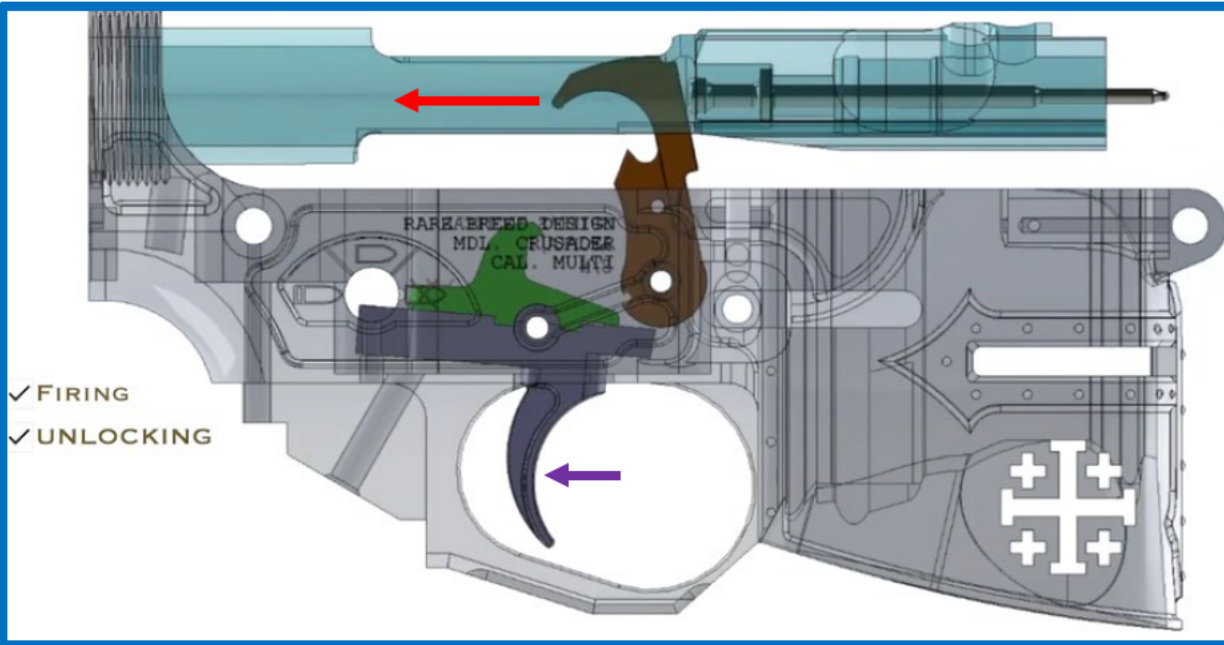
FRT-15



View of both the AR15 semiautomatic firearm (left), and the FRT-15 equipped firearm (right) having the trigger pulled to the rear. The sear, now clear of the hammer, allows the hammer to fall, striking the firing pin, thus firing the chambered cartridge.

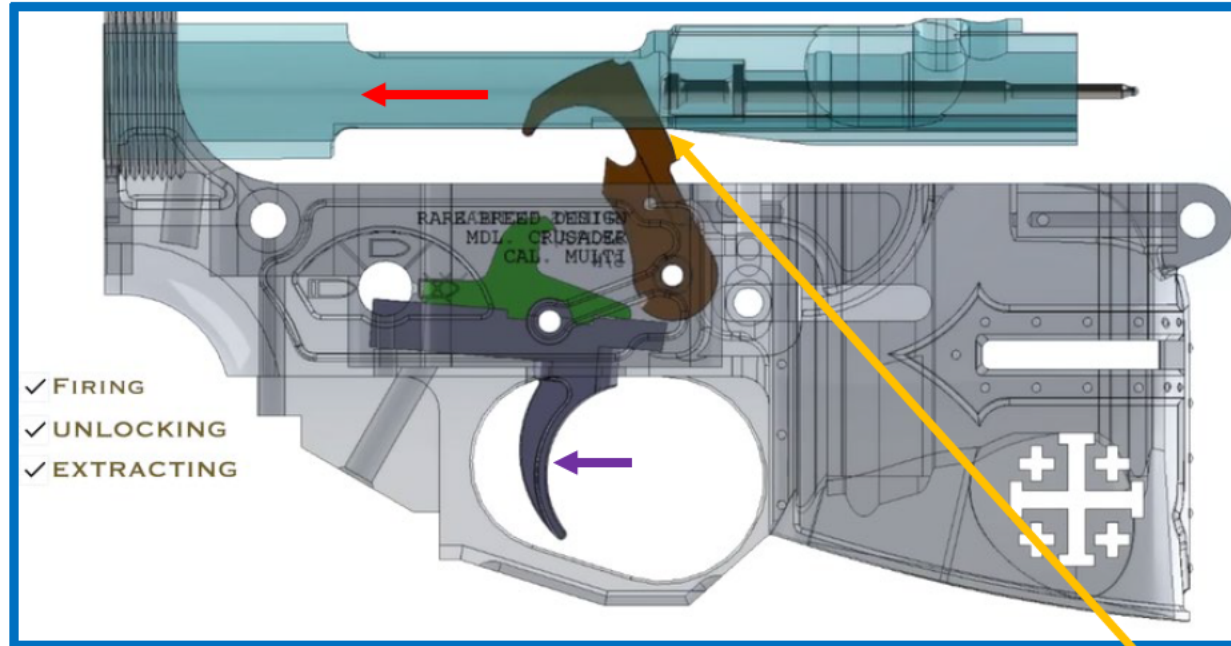
AR15 Semiautomatic

FRT-15

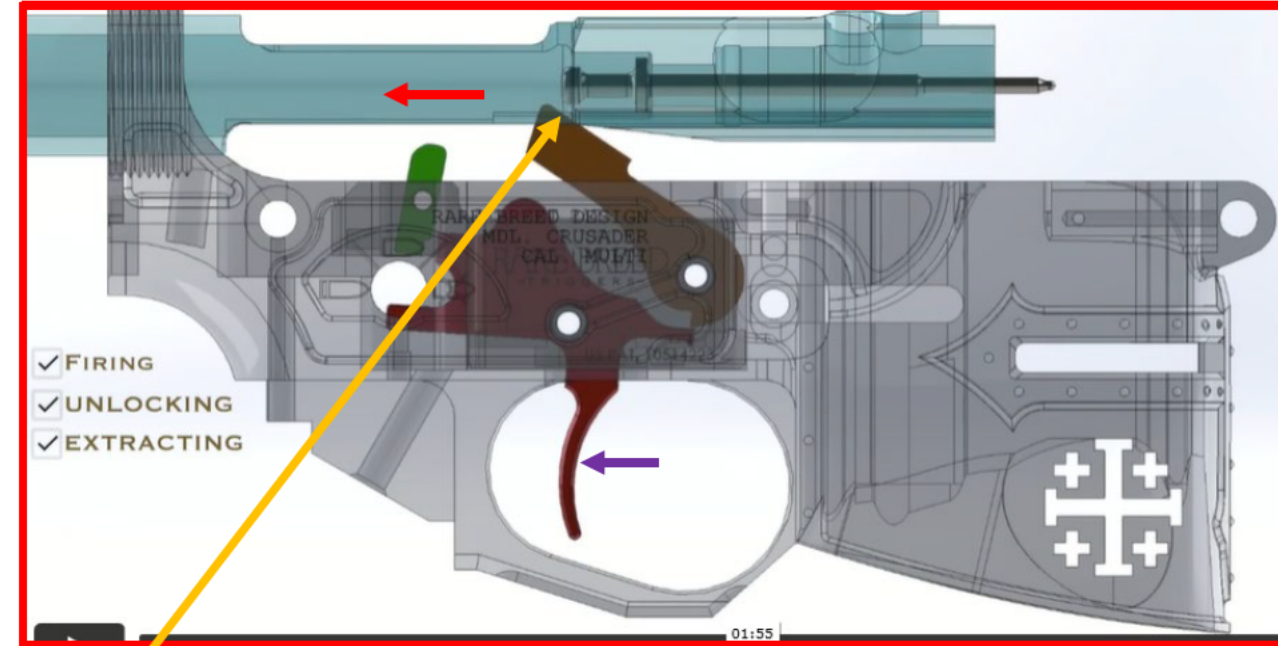


After the chambered cartridge is fired, the pressure of the gas generated by the burning propellant drives the projectile down the barrel and past the gas port, a small quantity of the gas is bled off through the gas port, gas tube and bolt carrier key into a cylindrical section in the bolt carrier where it expands and drives the bolt carrier rearward. Note that this happens rapidly while rearward "pull" pressure from the trigger pull is maintained on the trigger. During the initial rearward travel of the carrier, the bolt is rotated by the cam pin acted on by the bolt carrier cam slot. This rotation disengages the bolt lugs from the barrel extension lugs so the bolt is unlocked. The bolt carrier group then continues rearward with the unlocked bolt assembly which starts to act upon the hammer.

AR15 Semiautomatic



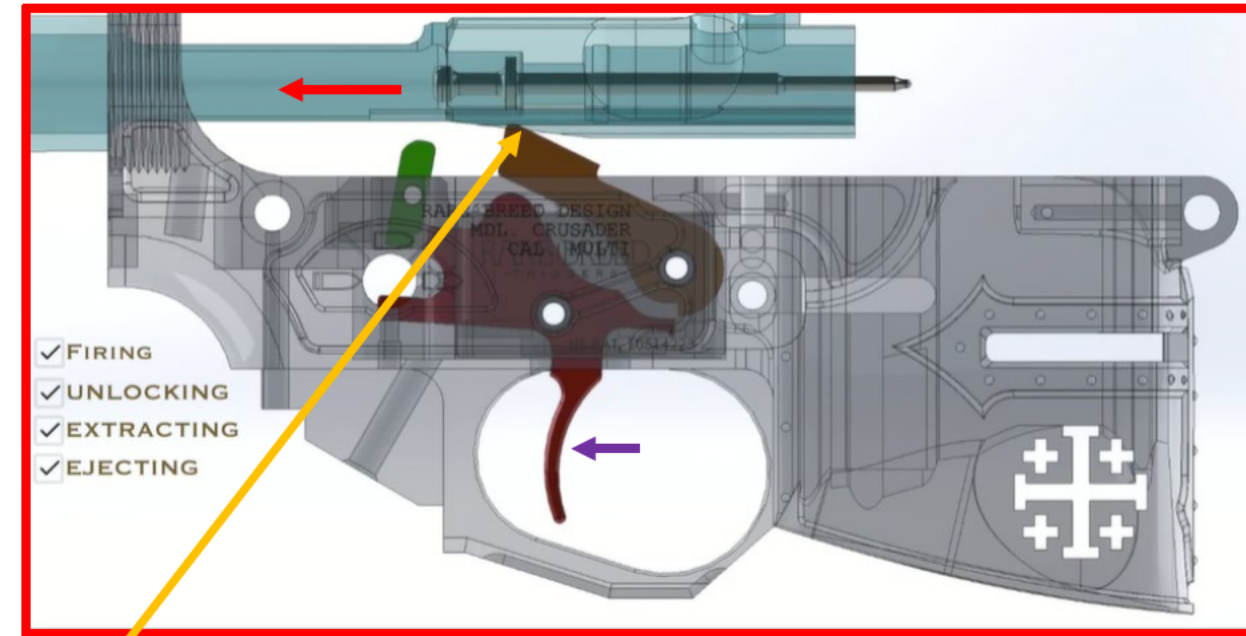
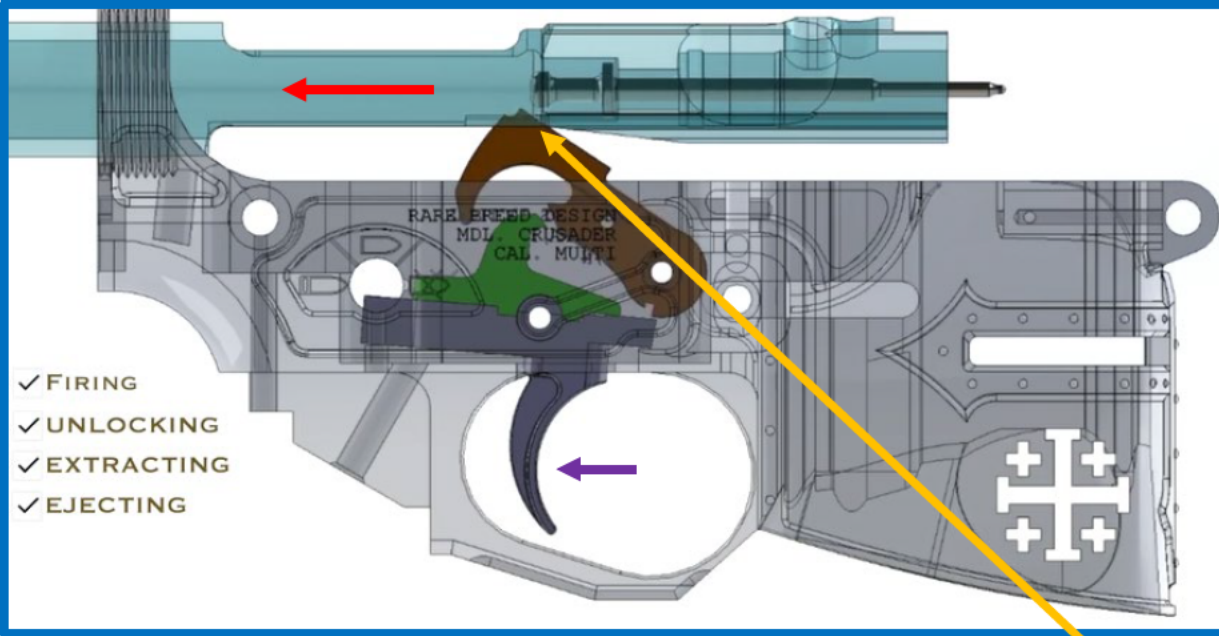
FRT-15



The fired cartridge case is withdrawn from the chamber as the bolt carrier group continues its rearward travel, also continuing to further depresses the hammer.

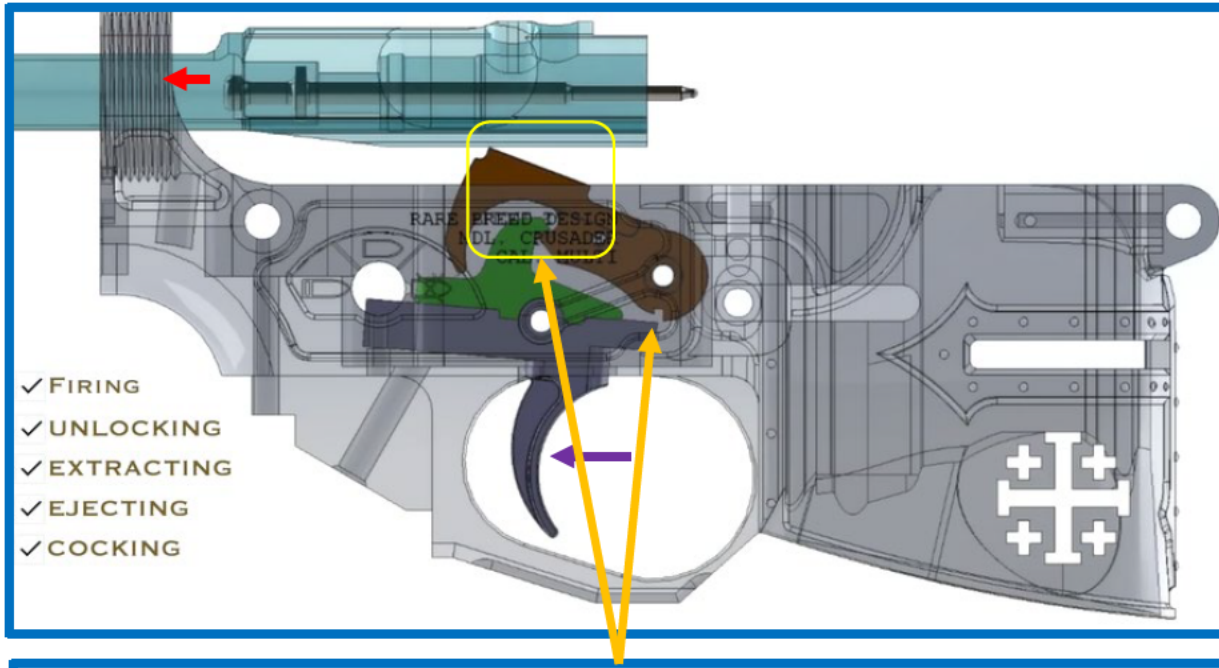
AR15 Semiautomatic

FRT-15



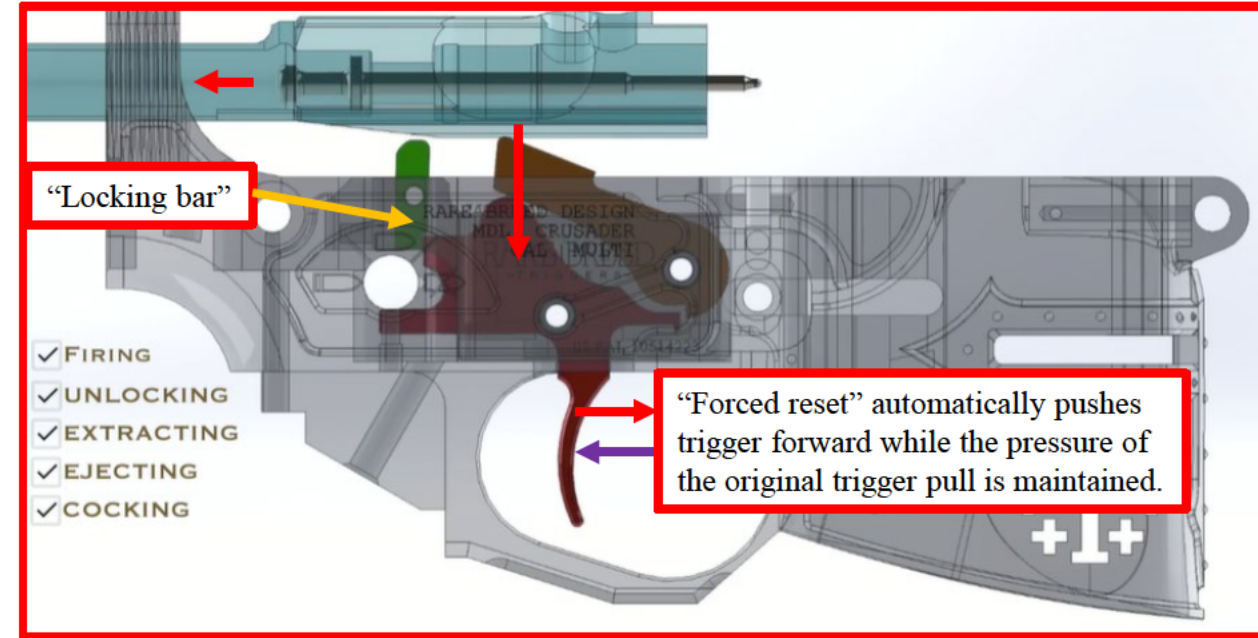
The spent case is drawn out of the chamber, the spring-loaded ejector, acting against the left side of the case head, pushes the spent case out of the ejection port. The bolt carrier group continues rearward still depressing the hammer.

AR15 Semiautomatic



As the bolt carrier group continues rearward to recoil, it compresses the action spring and cocks the hammer. In a semiautomatic AR15-type rifle, when the trigger is pulled, the firing action of the rifle is generally much faster than human reaction, so a “disconnect” is employed to retain the hammer in a cocked position for the remainder of the operating cycle, thus limiting the weapon to firing one shot, without manual reloading, by a single function (pull) of the trigger

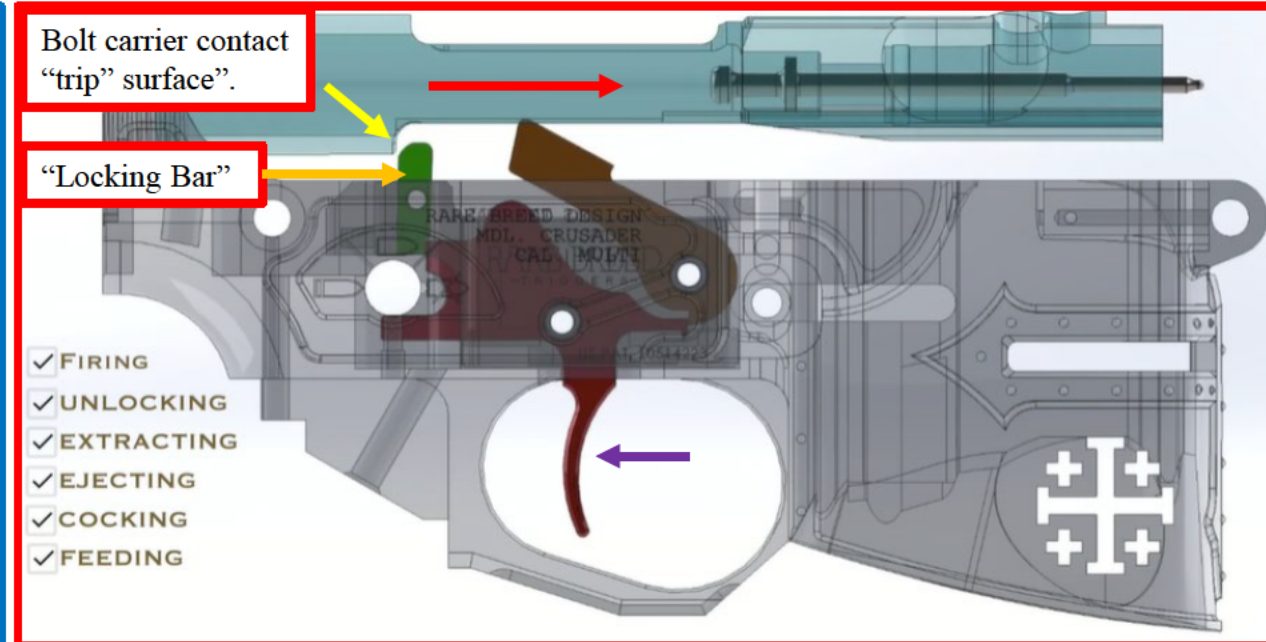
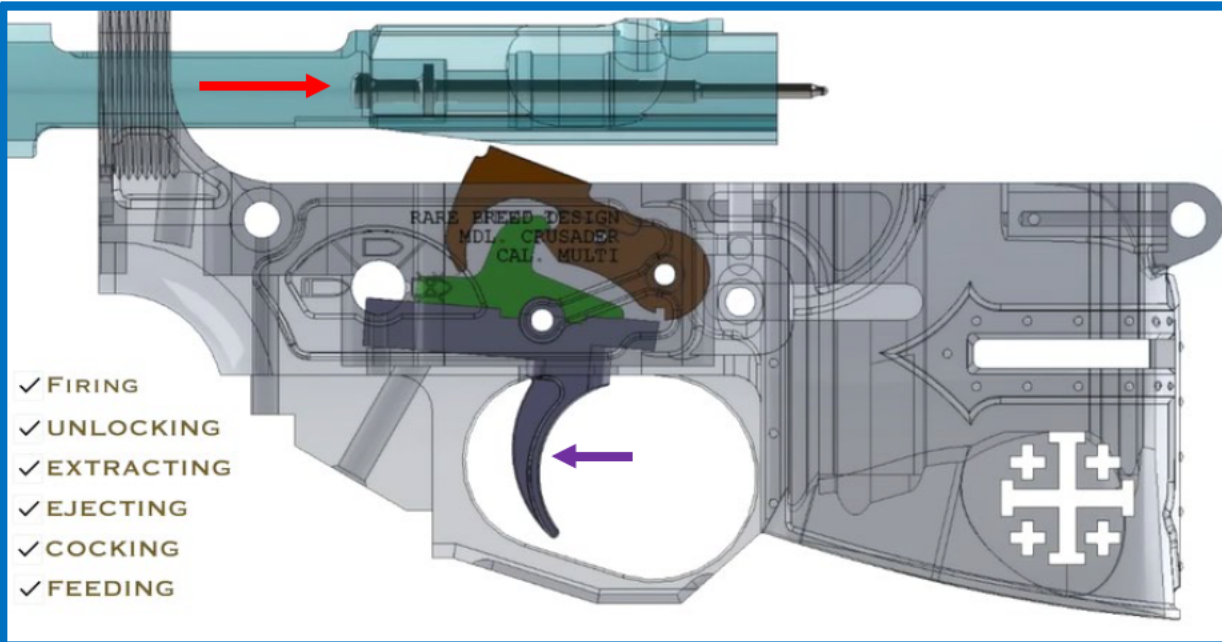
FRT-15



In the FRT-15 equipped firearm, as the bolt carrier group continues rearward to recoil also compressing the action spring, hammer contact with the bolt carrier group pushes down on the trigger which forces it forward allowing the “locking bar” to momentarily keep the trigger in place so that the shooter may not override the timing of the automatic functioning of the weapon. Note that it is possible to retain the pressure from the single function (pull) of the trigger during this self-acting or self-regulating phase of the mechanism’s operation, as it is with the semiautomatic AR15 (left), though with different results as the firearm goes into battery on a subsequent cartridge later in the operating cycle.

AR15 Semiautomatic

FRT-15

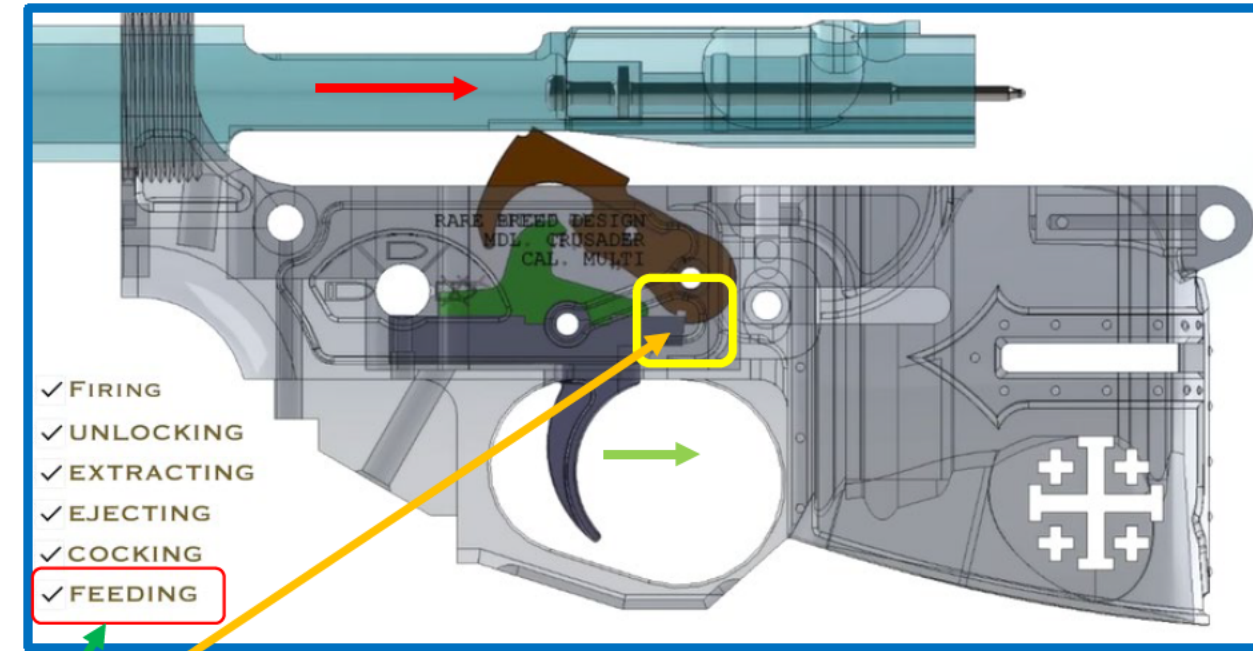
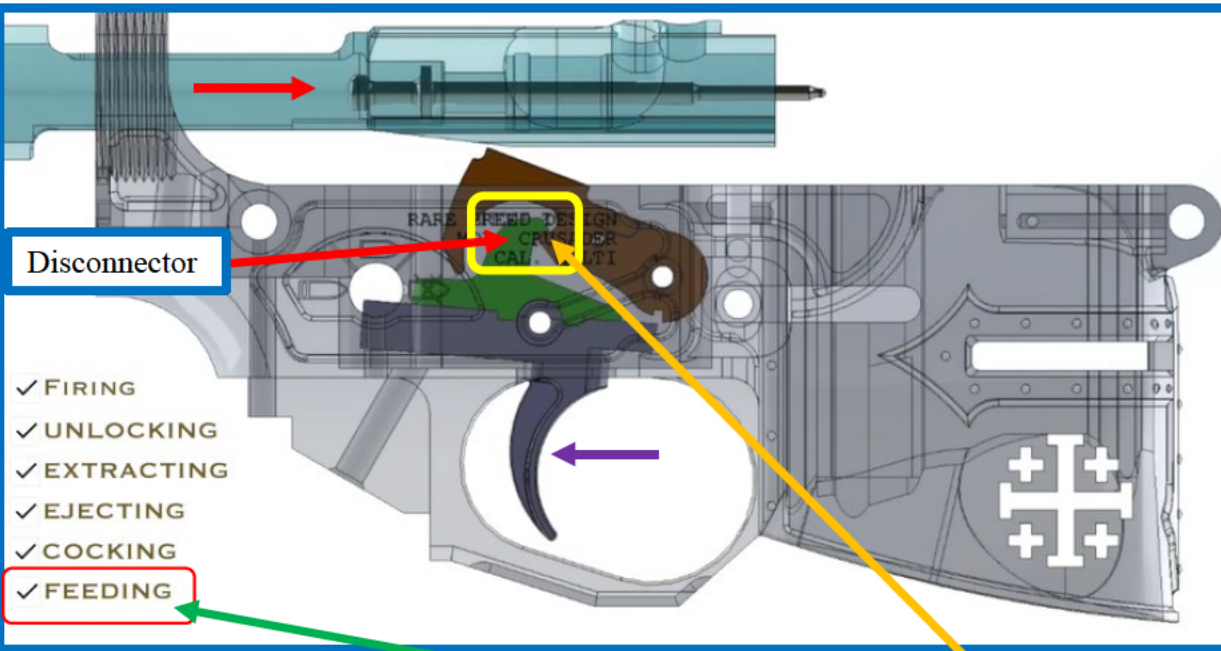


With pressure still maintained from the original continuous function (pull) of the trigger the hammer remains in a cocked position, still retained by the disconnecter. The action spring drives the bolt carrier group forward. As the bolt carrier group moves forward, the lugs of the bolt pick up a cartridge from the magazine and feed it into the chamber. As the bolt locking lugs enter the barrel extension, the ejector is compressed against the left side of the cartridge head, and the extractor snaps into the extractor groove on the cartridge.

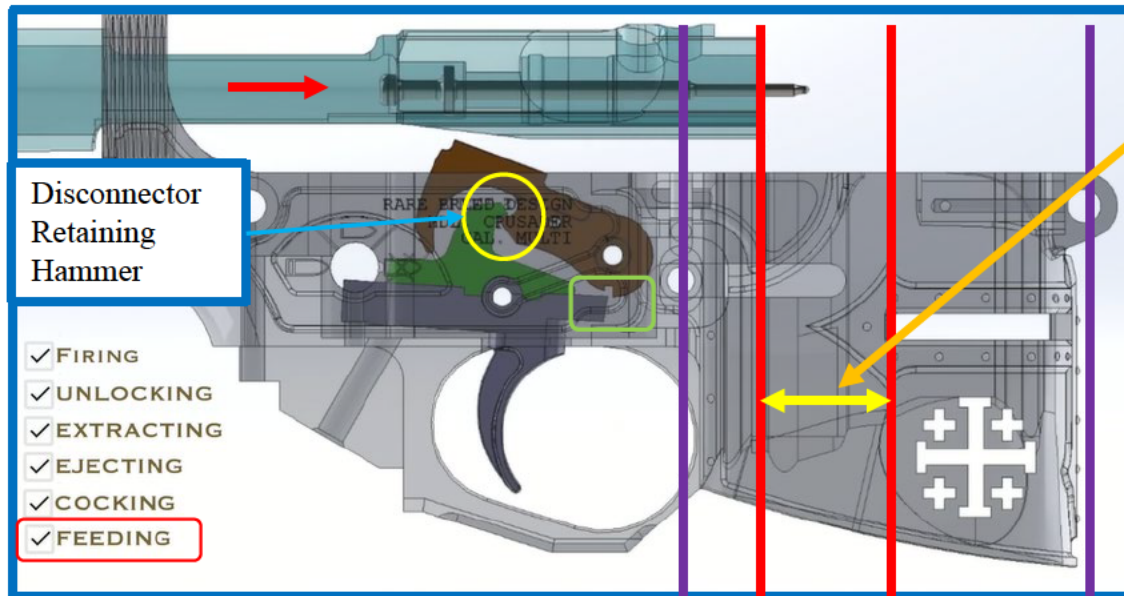
With pressure still maintained from the original continuous function (pull) of the trigger, the trigger is momentarily kept the forward position into which it was automatically placed by the self-acting or self-regulating mechanism (until the “locking bar” is struck by the “trip” surface on the M-16 “machinegun” type bolt carrier). This surface on the M-16 type bolt carrier is designed to interact with the automatic sear to effect automatic fire in “machinegun” variants of this operating system and serves no purpose in standard semiautomatic AR15-type firearms. The remainder of the feeding cycle remains similar. The action spring drives the bolt carrier group forward. As the bolt carrier group moves forward, the lugs of the bolt pick up a cartridge from the magazine and feed it into the chamber. As the bolt locking lugs enter the barrel extension, the ejector is compressed against the left side of the cartridge head, and the extractor snaps into the extractor groove on the cartridge.

AR-15 Semiautomatic

AR-15 Semiautomatic



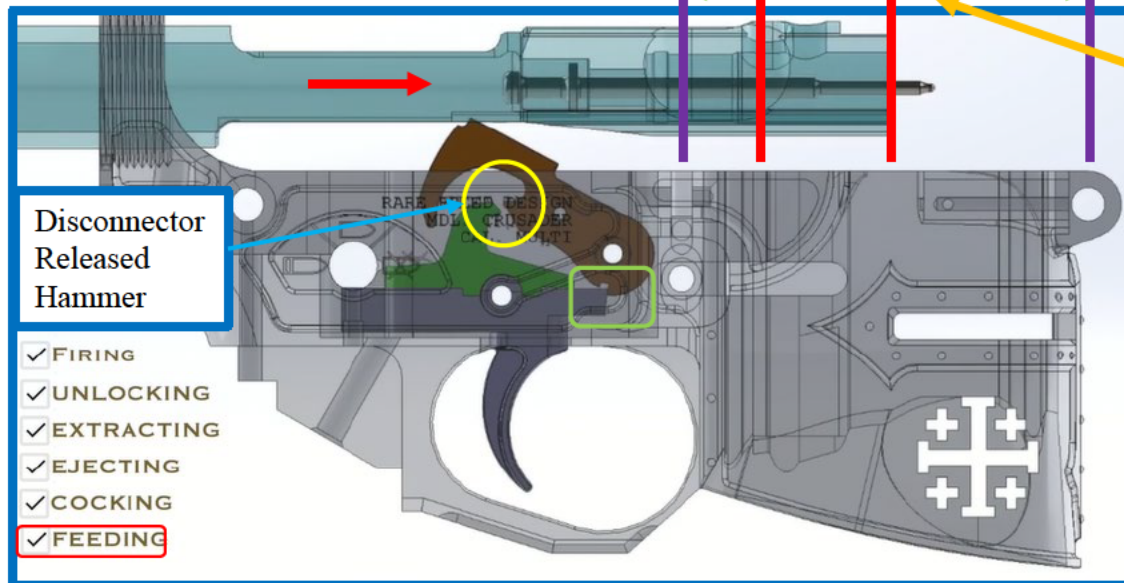
The Rare Breed video animation depicts the standard semiautomatic AR15-type firing mechanism as moving from having the disconnecter retaining the hammer (left view) in a cocked position, to having the trigger sear retaining the hammer in a cocked position (right view) during the “feeding” cycle. The video states that the shooter may release the trigger at this point to allow the trigger to reset. It is significant to note that for this to occur during at this point of the operating cycle, the shooter would be required to physically release the trigger within a fraction of a second after firing, unlike with the FRT-15, which does this automatically through its self-acting or self-regulating mechanism. See Wolf Tactical LLC U.S. Patent No.: 10,514,223 reference on next slide.



Approximate portion of bolt carrier assembly travel distance (forward stroke between red vertical lines), within overall operating cycle, that standard AR15 semiautomatic manual trigger release/reset is depicted within Rare Breed animation video.

To further explain the previous slide, the Rare Breed video states that a standard “mil-spec.” AR-15 trigger can be released by the shooter to reset the trigger at this point. To duplicate what is happening at this point of the operating cycle, the shooter would be required to physically release the trigger within a fraction of a second after firing, unlike with the FRT-15, which does this automatically through its self-acting or self-regulating mechanism.

This is a small fraction of time within the overall duration of the operating cycle (incorporating rearward and forward movement) which in its entirety takes only a fraction of a second in and of itself. This appears to have been done to “sync” the position of the of a standard semiautomatic trigger with that of the FRT-15 trigger at the same point of the operating cycle in the Rare Breed FRT-15 video animation.

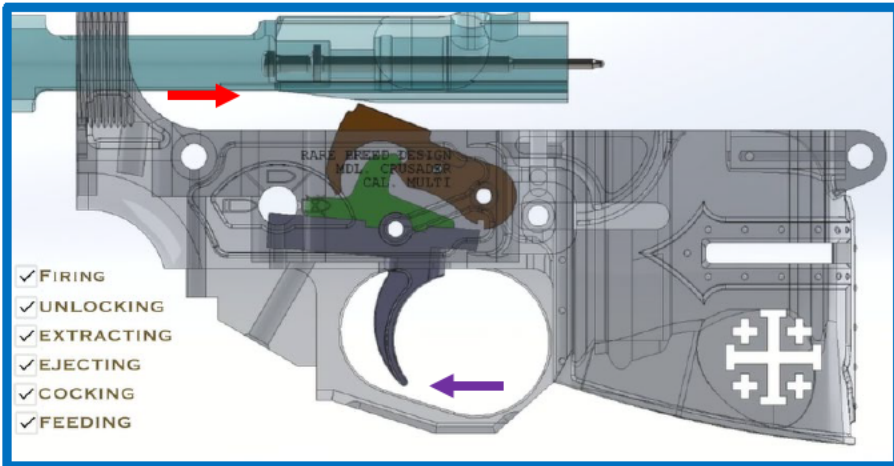


Approximate overall bolt carrier assembly travel distance (both rearward and forward strokes between purple lines) during entire operating cycle.

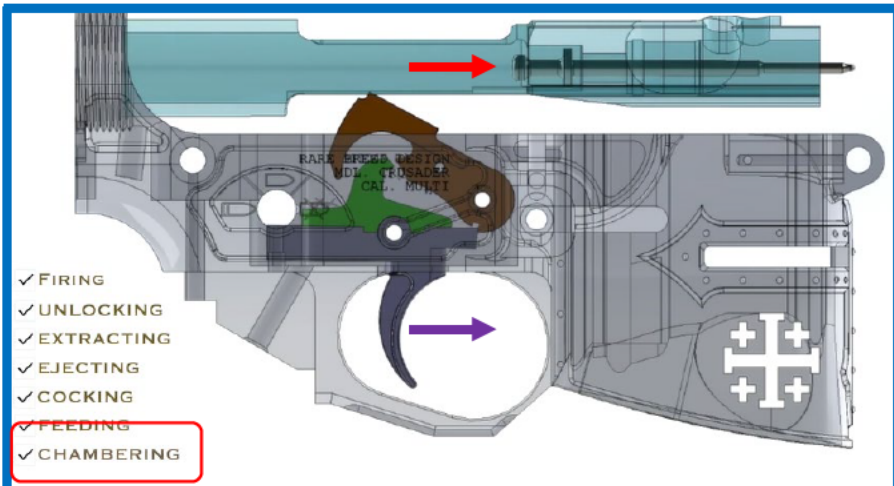
This phenomena is mentioned within Wolf Tactical LLC U.S. Patent No.: 10,514,223 B1.

“ A standard semiautomatic trigger mechanism includes a disconnecter, which holds the hammer or striker in a cocked position until the trigger member is reset to engage the sear. This allows the firearm to be fired only a single time when the trigger is pulled and held, because the user is not typically able to release the trigger rapidly enough so that the sear engages before the bolt or bolt carrier returns to the in-battery position. The disconnecter prevents the firearm from either firing multiple rounds on a single pull of the trigger, or allowing the hammer or striker to simply “follow” the bolt as it returns to battery without firing a second round, but leaving the hammer or striker uncocked.”

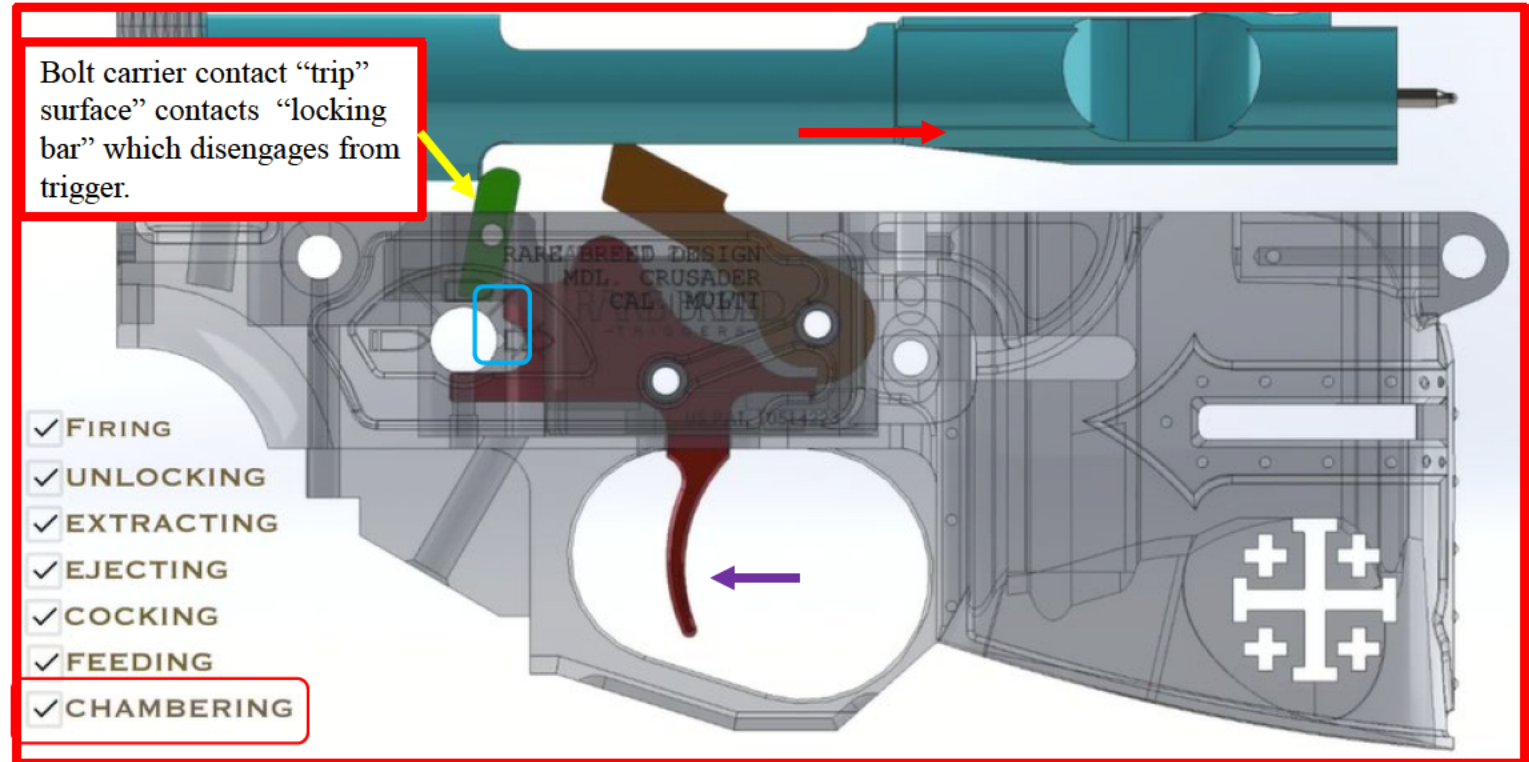
AR-15 Semiautomatic



ATF notes for the reasons outlined in the previous two slides that during the “feeding” portion of the AR15 semiautomatic operating cycle, the trigger is most commonly still being retained to the rear with the hammer retained by the disconnecter (top view) than as depicted below.

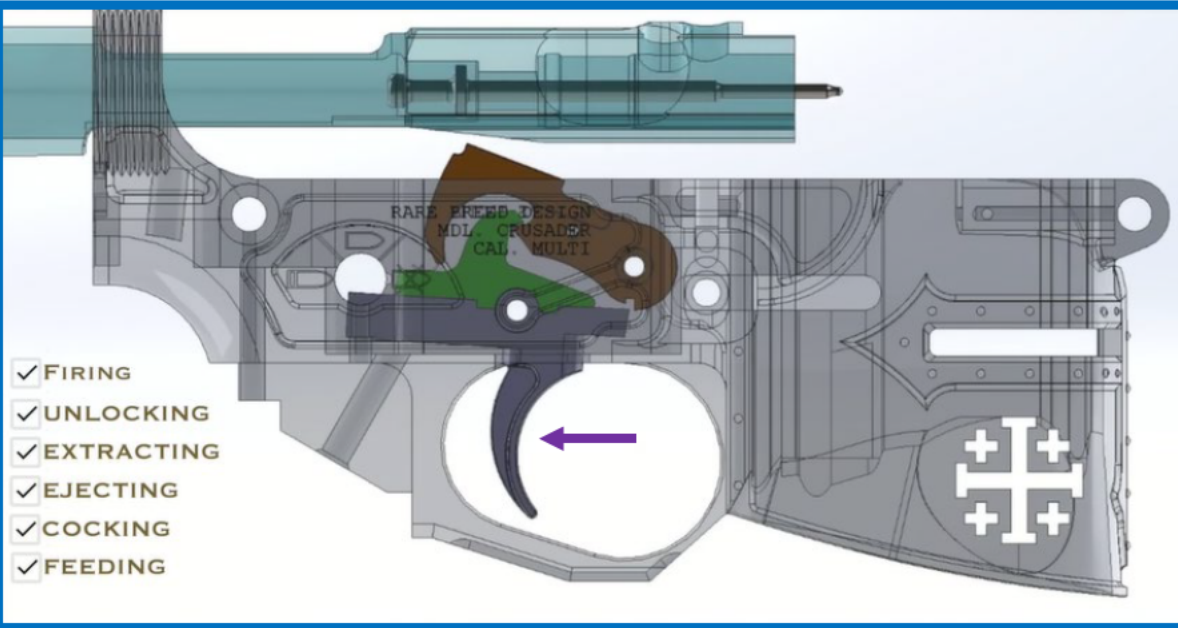


FRT-15



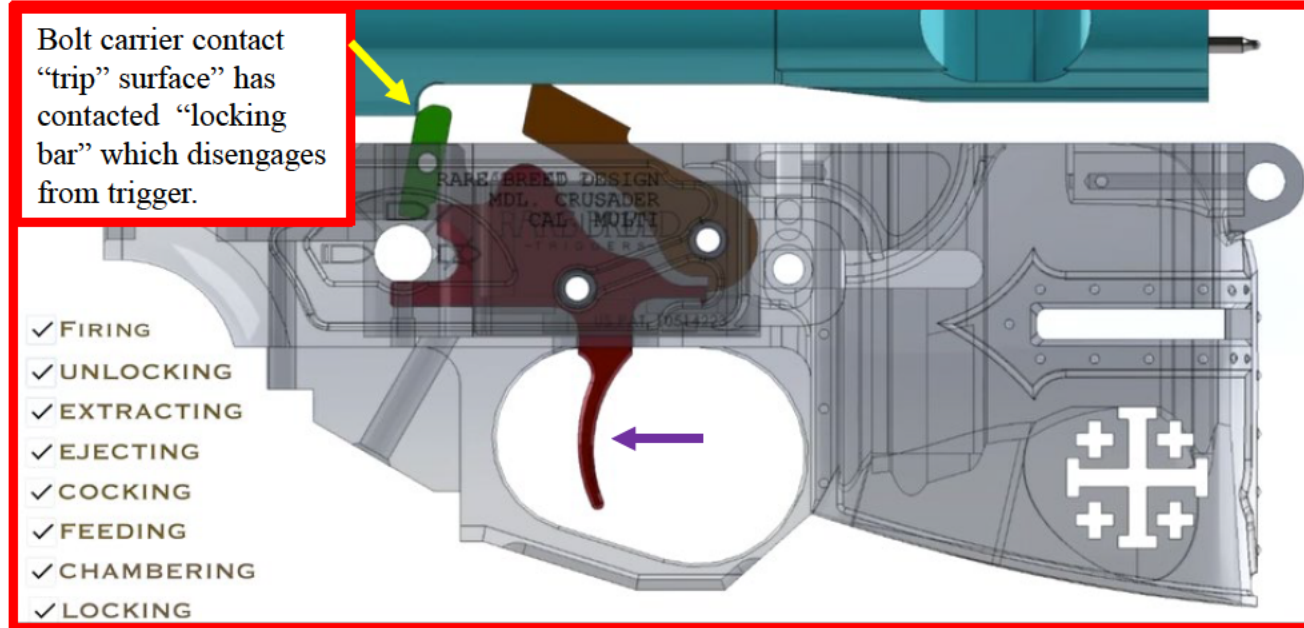
With pressure still maintained from the original continuous function (pull) of the trigger, the trigger, which was momentarily kept in the forward position into which it was automatically forced, is now free to fire subsequent shots with continuous pressure from the original function (pull) of the trigger, due to the self-acting or self-regulating mechanism. The “locking bar” performs a timed delay function which is automatically disengaged during the operating cycle of the firearm, rather than a positive disconnect, as does the standard AR15-type disconnecter pictured in images at left.

AR15 Semiautomatic

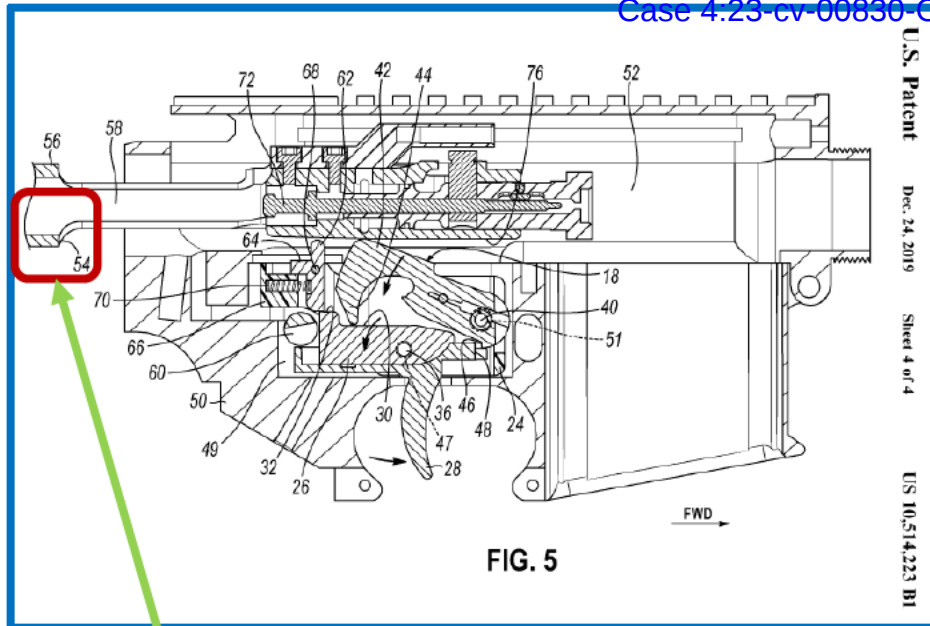


If pressure applied during the initial function (pull) of the trigger is continuously maintained after firing the first shot (see Wolf Tactical LLC patent excerpt on slide 21) during the operating cycle of the firearm, the standard AR15 does not fire a subsequent shot with the original single function (pull) of the trigger. The shooter is required to both manually release and pull the trigger to fire another shot. Even if the shooter does manage to physically release the trigger during the operating cycle of the firearm to reset the trigger, an additional “pull” is required to fire another shot.

FRT-15



If pressure applied during the initial function (pull) of the trigger is continuously maintained after firing the first shot during the operating cycle of the FRT-15 equipped firearm, the self-acting or self-regulating mechanism will automatically force the trigger forward into the shooters finger thus “resetting” the trigger (with the original function (pull) of the trigger being maintained, subsequent shots are fired each time the momentary timed delay provided by the “locking bar” is removed as it is impacted or “tripped” by a surface present on the required M16-type machinegun bolt carrier designed to preform that function om M16-type machineguns during the firearms operating cycle.



Wolf Tactical LLC Patent Images

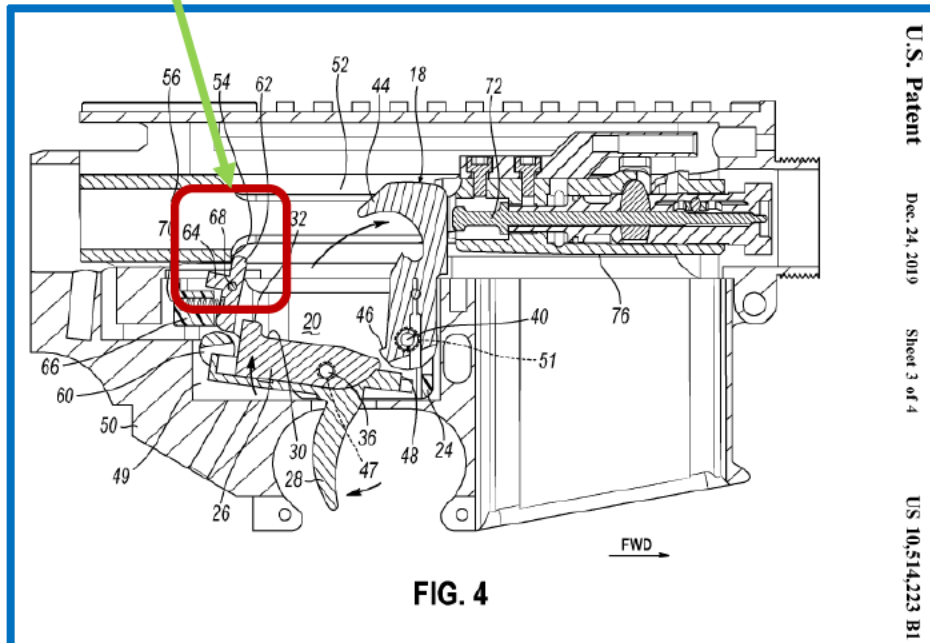
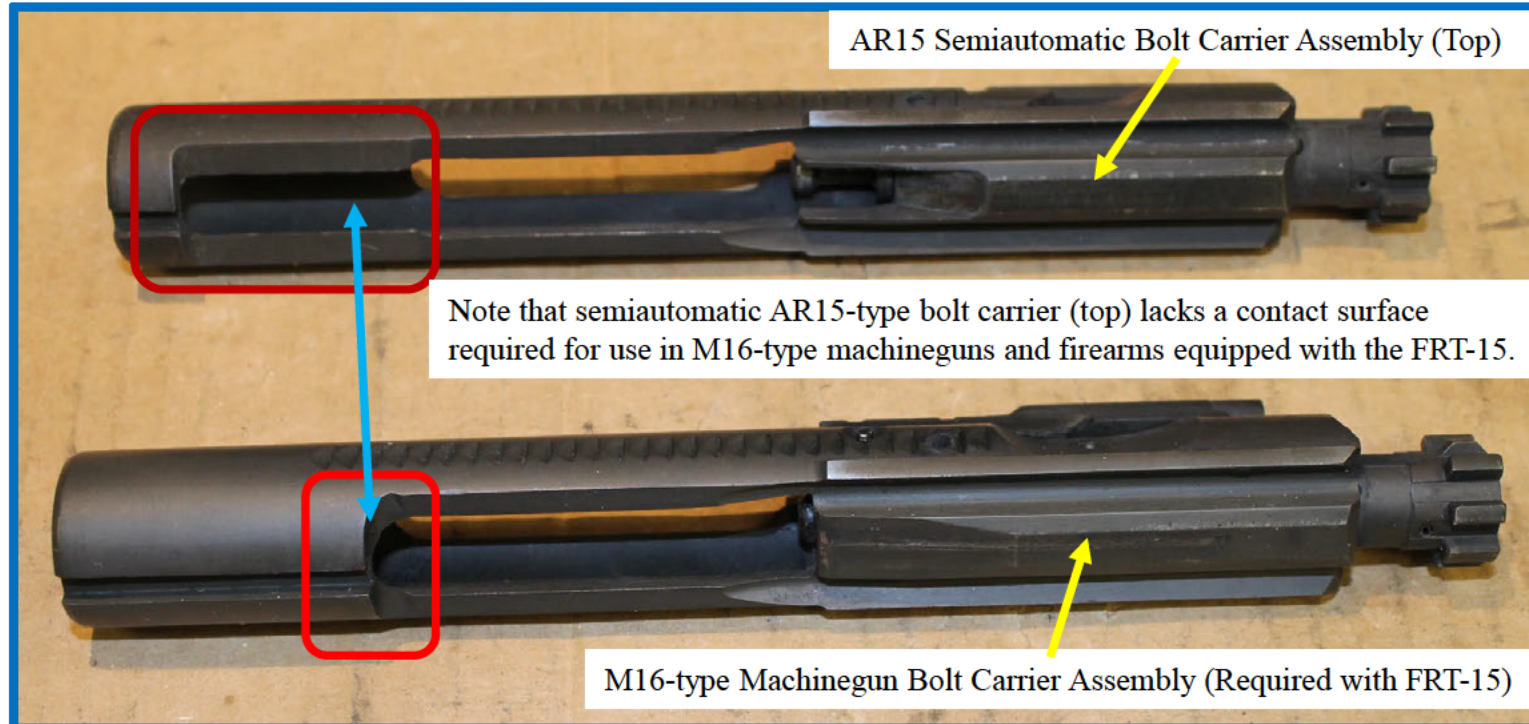


FIG. 4



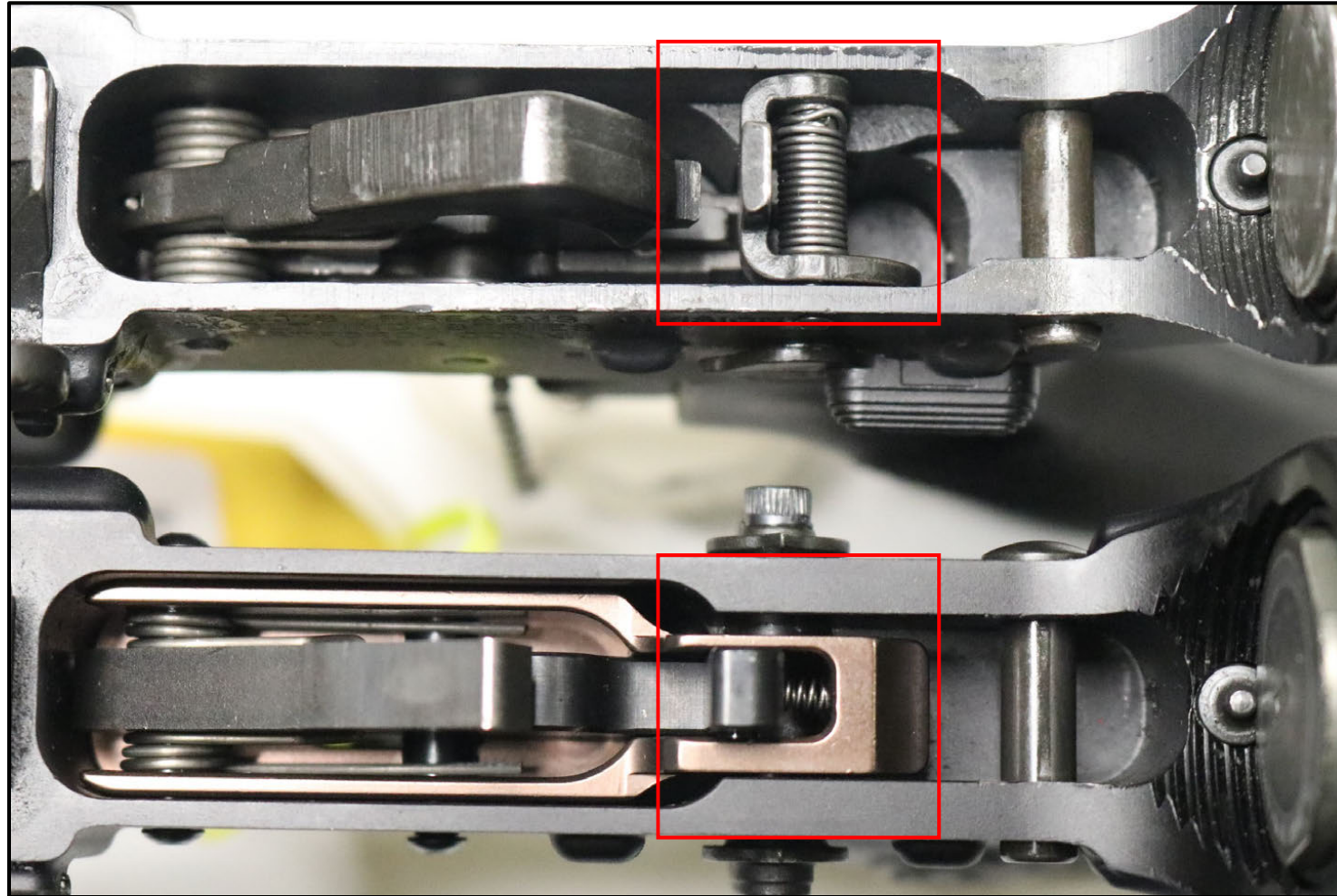
The FRT-15 requires the use of an M16-type machinegun bolt carrier which incorporates a contact surface designed to “trip” the automatic sear in an M16-type machinegun to effect automatic fire, this same contact surface is required to “trip” the “locking bar” on the FRT-15 mechanism during the operating cycle of the firearm. Wolf Tactical LLC U.S. Patent : 10,514,223 B1 includes the following in 4, 50 and 55:

*“The bolt carrier assembly 52 used with the embodiments of this invention can be an ordinary (mil-spec) M16-pattern bolt carrier assembly, whether operated by direct impingement or a gas piston system, that **has a bottom cut position to engage an auto sear in a fully automatic configuration.** The bottom cut creates an engagement surface 54 in the tail portion 56 of the bolt carrier body 58. **This is distinct from a modified AR15 bolt carrier that is further cut-away so that engagement with an auto sear is impossible.**”*

Emphasis in red added by ATF.

ATF0272

Exhibit 42 Installed in NFC DDM4 (bottom)
Compared to NFC M4 Machinegun (top)

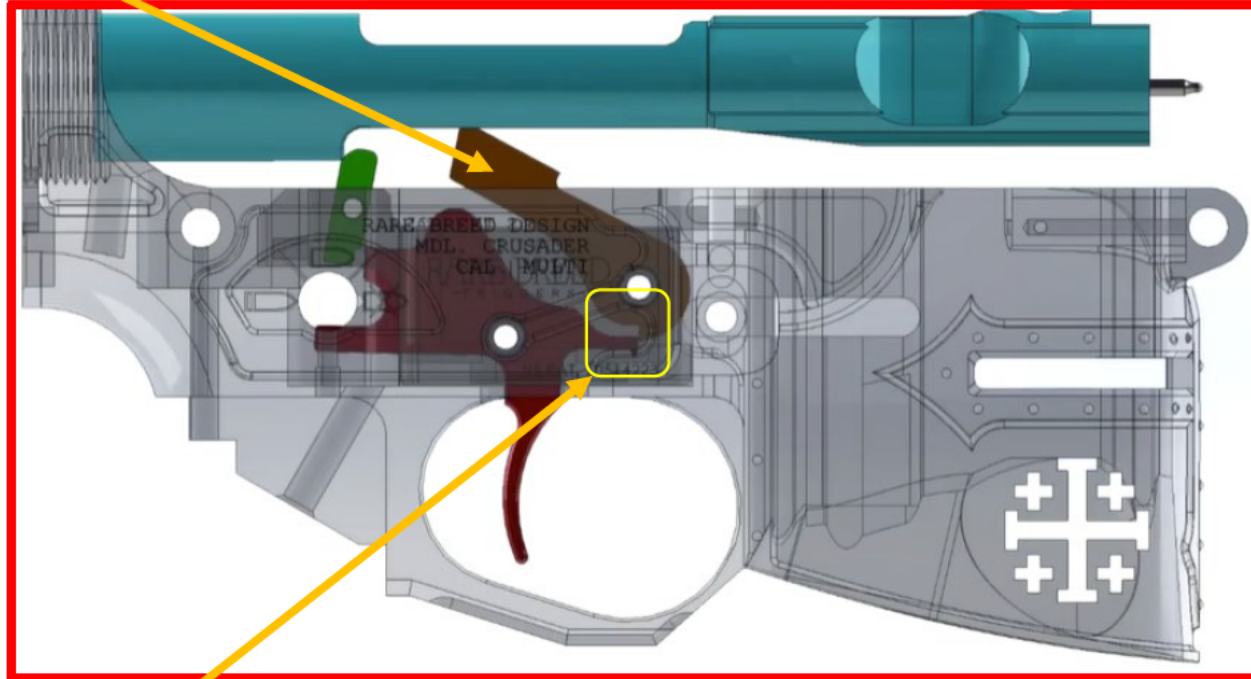
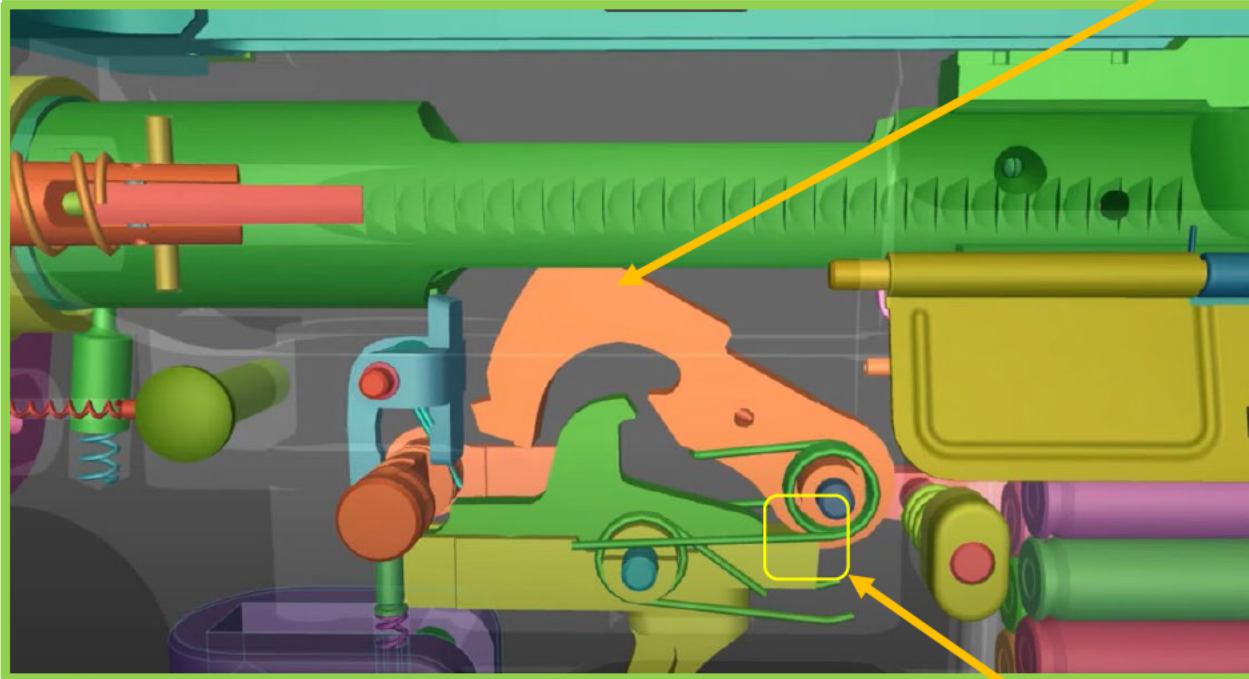


Both firearms require that an M16-type machinegun bolt carrier be utilized to function as designed. The M16-type machinegun carrier trips both the “locking bar” on the FRT-15 equipped firearm and the automatic sear on the M16-type machinegun to effect automatic fire.

M16-TYPE MACHINEGUN

Hammer

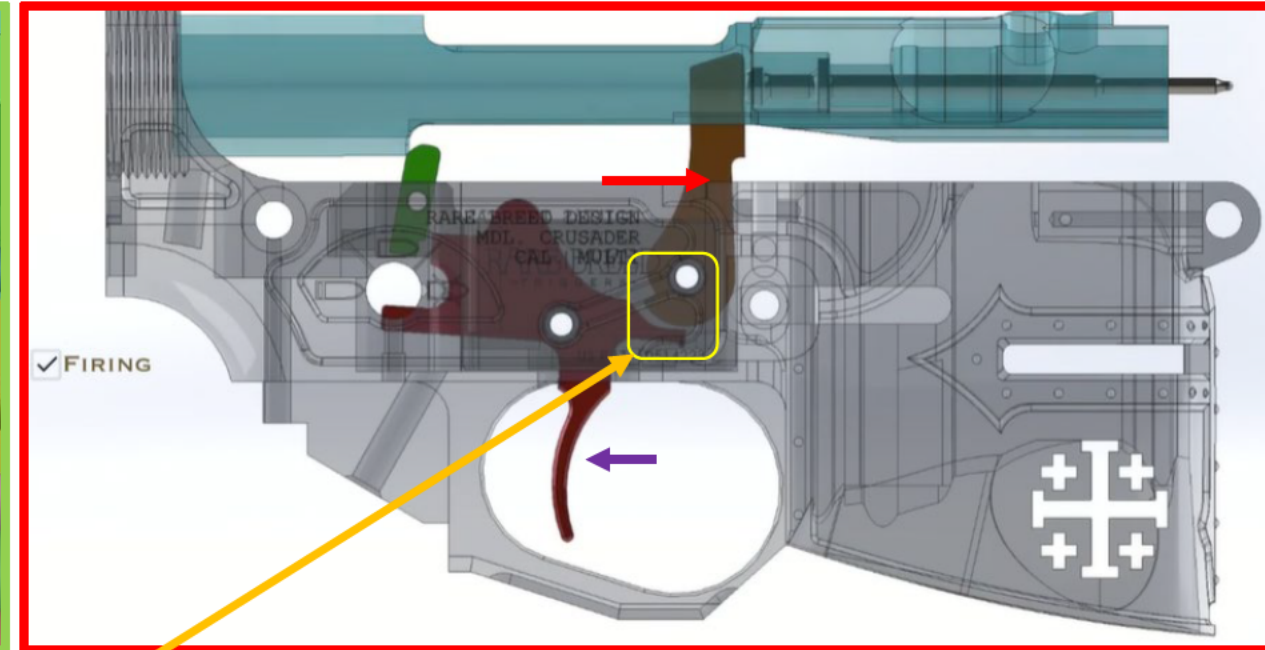
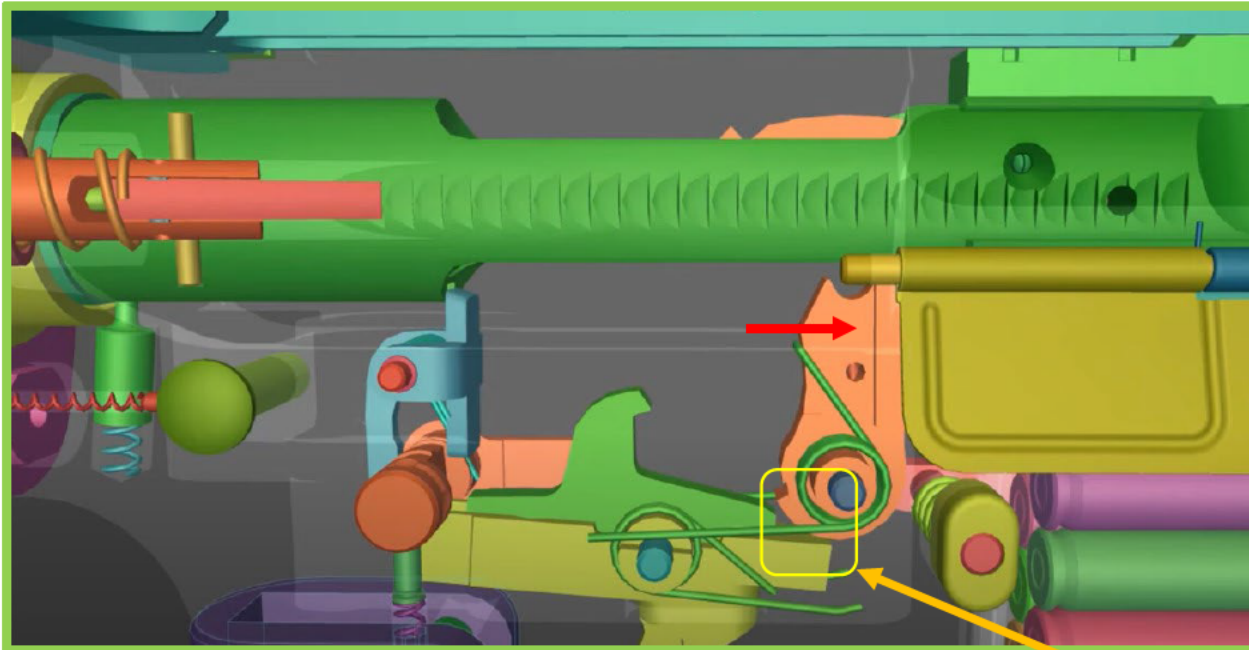
FRT-15



When the trigger is first pulled with the weapon in battery having a cartridge chambered, it causes the sear (located on the front of the trigger), to release the hammer

M16-TYPE MACHINEGUN

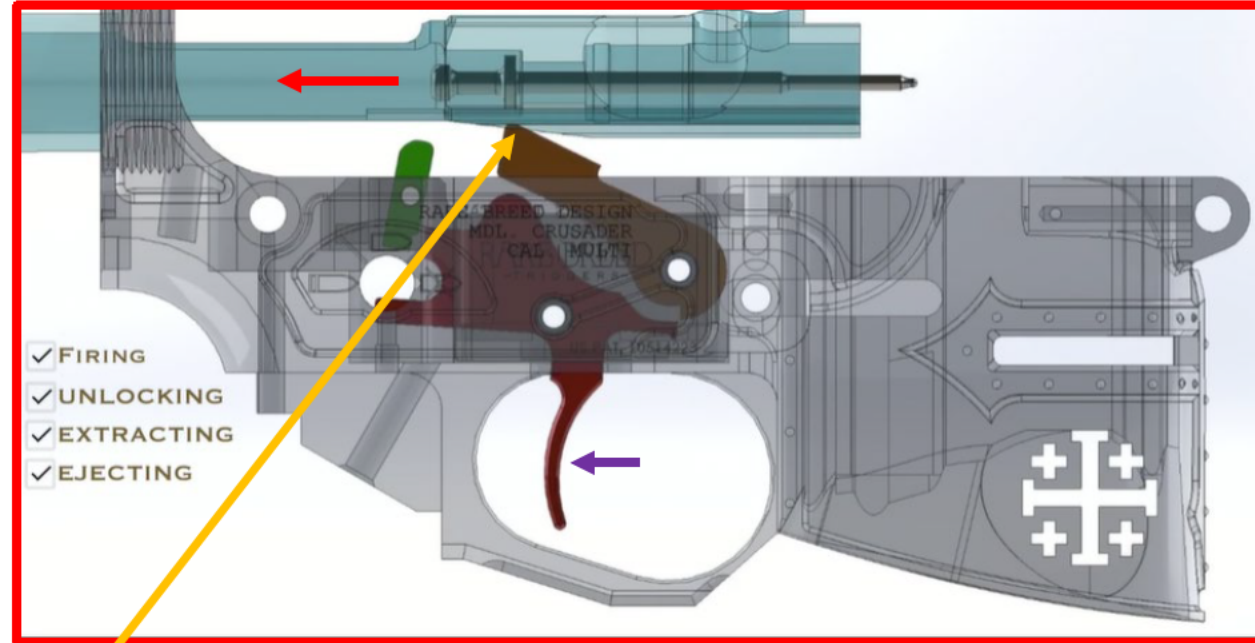
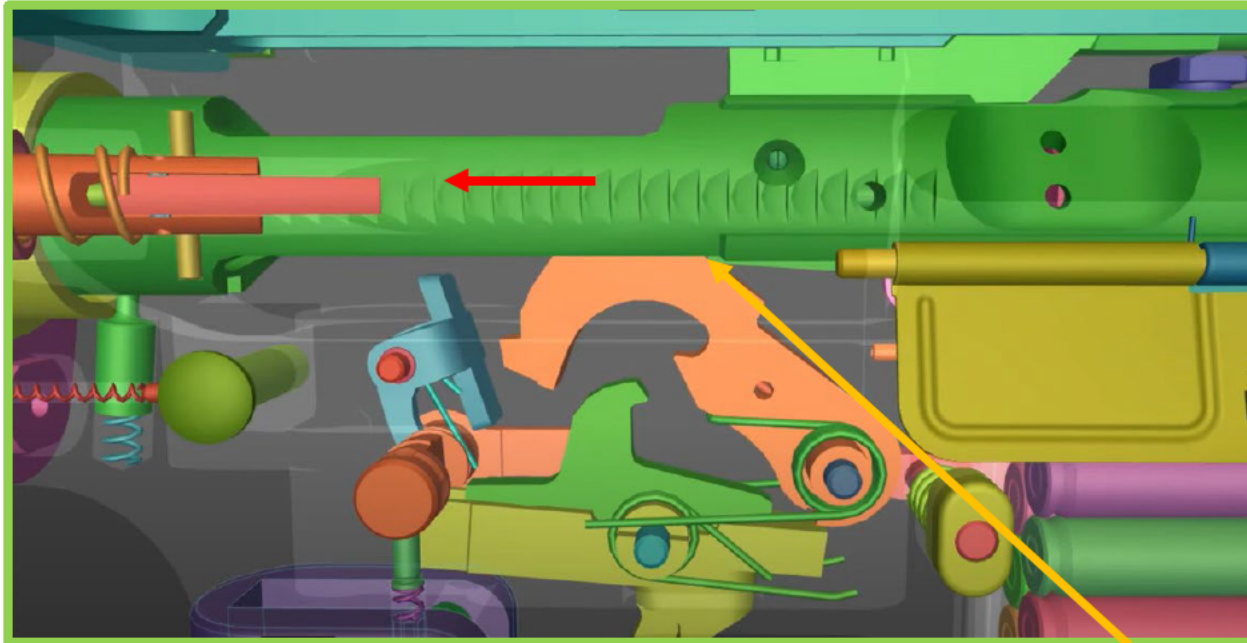
FRT-15



View of both the M16-type machinegun (left), and the FRT-15 equipped firearm (right) having the trigger pulled to the rear. The sear, now clear of the hammer, allows the hammer to fall, striking the firing pin and firing the chambered cartridge.

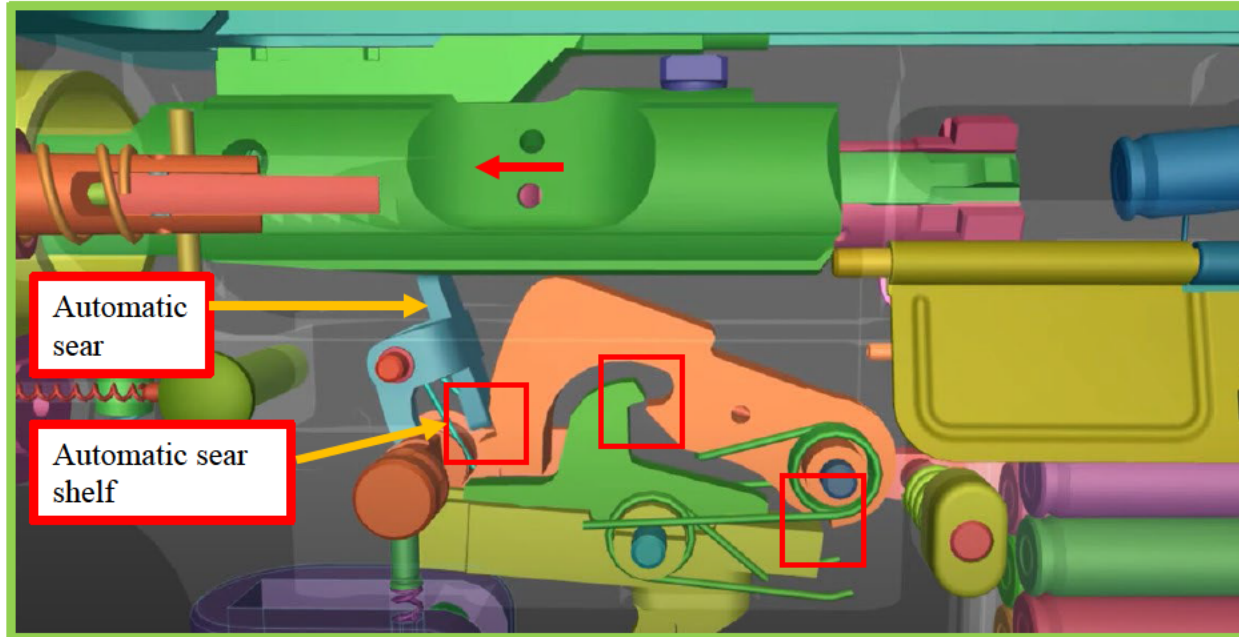
M16-TYPE MACHINEGUN

FRT-15



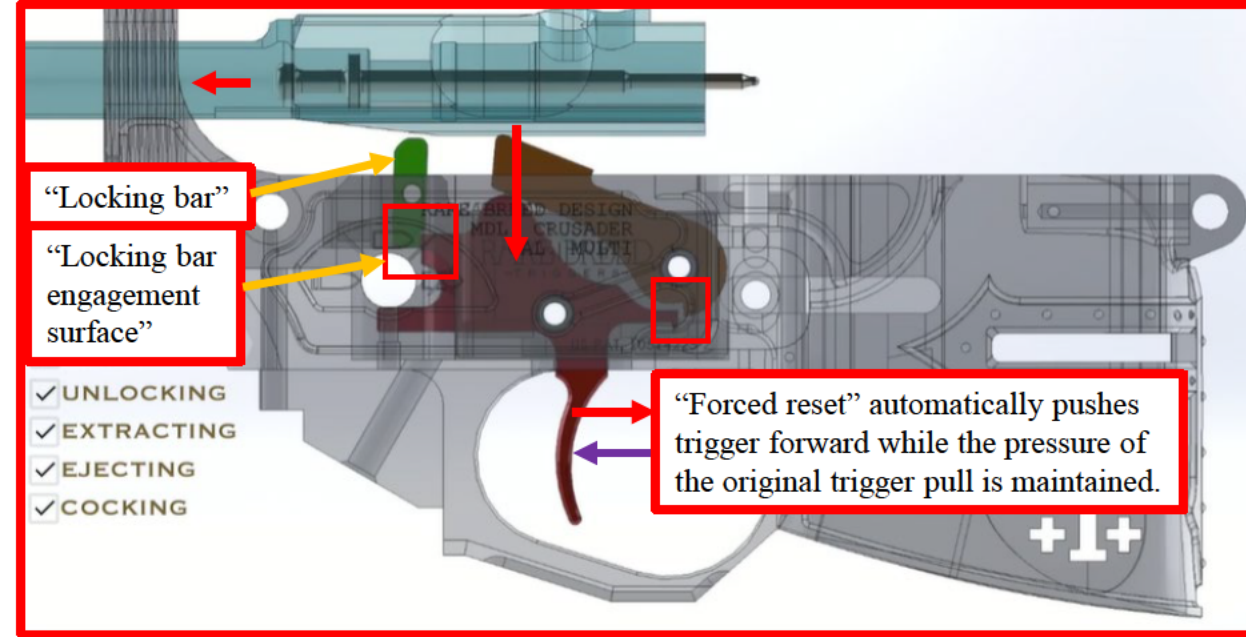
The spent case is drawn out of the chamber, the spring-loaded ejector, acting against the left side of the case head, pushes the spent case out of the ejection port. The M16-type bolt carrier group continues rearward still depressing the hammer.

M16-TYPE MACHINEGUN



As the M16-type bolt carrier group continues to recoil rearward, it compresses the action spring and cocks the hammer. In a M16-type machinegun, with the selector is rotated to the “automatic” position, it depresses the disconnecter thus preventing it from contacting the sear surface of the hammer. When the trigger is pulled, the hammer is released by the sear surface of the front of the trigger that contacts the sear notch on the hammer. When the bolt moves rearward, it pushes the hammer down allowing the automatic sear to engage the automatic sear shelf on the hammer and is the only mechanism holding the hammer in place this time and is effectively timing the hammer to fall once the bolt has moved forward into battery.

FRT-15



In the FRT-15 equipped firearm, as the M16-type bolt carrier group continues rearward to recoil also compressing the action spring, hammer contact with the bolt carrier group pushes down on the upper lobe of the trigger which forces it forward allowing the “locking bar” to momentarily time the trigger by keeping it in place so that the shooter may not override the timing of the automatic functioning of the weapon. Note that it is possible to retain the pressure from the single function (pull) of the trigger during this self-acting or self-regulating phase of the mechanism’s operation, as it is with a semiautomatic AR-15, though with different results as the firearm goes into battery on a subsequent cartridge later in the operating cycle which is similar to the M16 machinegun (left).